

Water Resources Data for Washington
Water Year 1979. Volume 2. Eastern Washington

(U.S.) Geological Survey
Tacoma, WA

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U.S. Department of Commerce
National Technical Information Service



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Water Resources Data for Washington

Volume 2 Eastern Washington

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT WA-79-2

WATER YEAR 1979

Prepared in cooperation and with the State of
Washington and with other agencies

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U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA 22161

CALENDAR FOR WATER YEAR 1979

1978

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1979

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Water Resources Data for Washington

Volume 2. Eastern Washington

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT WA-79-2

WATER YEAR 1979

Prepared in cooperation and with the State of
Washington and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY

H. William Menard, Director

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Tacoma, Washington 98402

1980

PREFACE

This report was prepared by personnel of the Washington district of the Water Resources Division of the U.S. Geological Survey under the supervision of C. R. Collier, District Chief, and W. H. Robinson, Regional Hydrologist, Western Region. It was done in cooperation with the State of Washington and with other agencies.

This report is one of a series issued annually for each State. General direction for the series is by J. S. Cragwall, Jr., Chief Hydrologist, and Philip Cohen, Assistant Chief Hydrologist for Scientific Publications and Data Management, U.S. Geological Survey.

Data for the State of Washington are in two volumes as follows:

Volume 1. Western Washington

Volume 2. Eastern Washington

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GAGING STATIONS IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

VII

(Letter after station name designates type of data: (d) discharge (e) elevation, gage height or contents, (c) chemical, (b) biological, (m) microbiological, (t) water temperature, (s) sediment, (p) pesticide)

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WATER RESOURCES DATA FOR WASHINGTON, 1979

INTRODUCTION

Water resources data for the 1979 water year for Washington consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground-water wells. This report, in two volumes, contains records for water discharge at 237 gaging stations; stage only at 5 gaging stations; stage and contents at 43 lakes and reservoirs; water quality at 135 gaging stations (including 6 lakes and reservoirs) and 100 wells; and water levels at 164 observation wells. Also included are data for 88 crest-stage and 89 water-quality partial-record stations. Locations of sites in this volume are on figures 4, 5, and 19. Additional water data were collected at various sites not involved in the systematic data-collection program and are published as miscellaneous measurements and analyses. These data represent that part of the national Water Data system operated by the U.S. Geological Survey and cooperating State, local, and Federal agencies in Washington.

Records of discharge and stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled, "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled "Ground Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from the Branch of Distribution, U.S. Geological Survey, 1200 South Eads Street, Arlington, VA 22202.

For water years 1961 through 1974, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1974 were similarly released either in separate reports or in conjunction with streamflow records.

Beginning with the 1975 water year, water data for streamflow, water quality, and ground water are published in official Survey reports on a State-boundary basis. These official Survey reports carry an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report WA-79-2". For archiving and general distribution, the reports for water years, 1971-74 are also identified as water-data reports. These water-data reports are on sale, in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the district chief at the address given on the back of the title page or by telephone (206) 593-6510.

COOPERATION

The U.S. Geological Survey and organizations of the State of Washington have had cooperative agreements for the systematic collection of surface-water and water-quality records since 1909. Organizations that supplied data are acknowledged in the station descriptions. Organizations that assisted in collecting data through cooperative agreements with the Survey are:

Washington State Department of Ecology, Wilbur G. Hallauer, director
Washington State Department of Fisheries, Gordon Sandison, director
Washington State Department of Transportation, William A. Bulley, secretary
Washington State Department of Game, Ralph W. Larson, director
City of Seattle, Department of Lighting, Robert Murray, superintendent
Municipality of Metropolitan Seattle, Neil Peterson, executive director
City of Tacoma, Department of Public Utilities, P. J. Nolan, director
City of Tacoma, Department of Public Works, Ronald M. Button, director
City of Everett, Department of Utilities, Marvin C. Haglund, director
City of Bellevue, Department of Public Works, Clark Douglas, director
Chelan County, P.U.D. No. 1, Howard Elmore, manager
King County, Department of Public Works, James W. Guenther, director
Lewis County, Department of Public Works, Verne Wagar, director
Spokane County Board of Commissioners, Jerry C. Kopet, chairman
Quileute Tribal Council, Christian Penn, Sr., chairman
Quinault Tribal Council, Joseph B. DeLaCruz, president
Makah Tribal Council, Dale W. Johnson
Spokane Tribe, Glenn F. Galbraith, executive director
Yakima Tribal Council, Watson Totus, chairman
Washington State University, Department of Agricultural Engineering, Dr. Larry King
South Columbia Basin Irrigation District, Russell D. Smith, secretary-manager
Shoalwater Tribal Council, Douglas M. Davis, chairman
Hoh Tribal Council, John Leitka, chairman
Pierce County Board of Commissioners, Joe Stortini, chairman
Clallam County Board of Commissioners, Dick Lotzgesell, chairman

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, in collecting records for 47 gaging stations; the U.S. Environmental Protection Agency, in collecting records for one water-quality station; the U.S. Energy Research and Development Administration, in collecting records for 6 water-quality stations; the Bureau of Reclamation, U.S. Department of Interior, in collecting records for 19 gaging stations; the U.S. Department of State, in collecting records for 15 gaging stations; the Bonneville Power Administration, in collecting records for 4 gaging stations.

The following organizations aided in collecting records:

Crown Zellerbach Corporation; City of Fircrest, Intercounty River Improvement; ITT Rayonier; City of Olympia, Pacific Power and Light Co., Public Utility Districts, No. 1 of Cowlitz County, No. 1 of Douglas County, No. 2 of Grant County, No. 1 of Pend Oreille County, No. 1 of Snohomish County, Puget Sound Power and Light Co., Skagit County Public Works Department; University of Washington, through its Fisheries Research Institute and Civil Engineering Department; Washington Public Power Supply System; Washington Water Power Co., Whatcom County Engineer.

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report are defined below. See also table for converting English units to International System of units (SI) on the inside of the back cover.

Acre-foot (AC-FT, ac-ft) is a quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic metres.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Bacteria are microscopic unicellular organisms, typically spherical, rod-like, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse of plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C $\pm$ 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C $\pm$ 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of samples.

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blood animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at $35^{\circ}\text{C} + 1.0^{\circ}\text{C}$ on M-enterococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of only readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons or 2,447 cubic meters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloro-platinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulated the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second (FT^3/s , ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to the amount of substance present in true chemical solution. In practice, however, the term includes all forms of substance that will pass through a 0.45-micrometer membrane filter, and thus may include some very small (coloidal) suspended particles. Analyses are performed on filtered samples.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = - \sum_{i=1}^s \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution area, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate (CaCO_3).

Hydrologic unit is a geographic area representing part of all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per gram (ug/g) is a unit expressing the concentrations of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Micrograms per liter (UG/L, ug/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L, and is based on the mass of sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters (m^2), acres, or hectares. Periphyton benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Partial-size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology.

The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay.....	0.00024 - 0.004	Sedimentation
Silt.....	.004 - .062	Sedimentation
Sand.....	.062 - 2.0	Sedimentation or sieve
Gravel.....	2.0 - 64.0	Sieve

The particle-size distribution given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass or volume.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

Picocurie (PC, pCi) is one trillienth (1×10^{12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells/mL of sample.

Green algae have chlorophyll pigments similar in color to those higher green plants. Some forms produce algal mats or floating "moss in lakes." Their concentrations are expressed as number of cells/mL of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water, it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge times mg/L times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time.

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the work "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lived.

Natural substrates refers to any naturally occurring emersed or submersed solid surface, such as rock or tree, upon which an organism lived.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multi-place samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the area are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 μ m membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 μ m membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of substance in solution or suspension that passes a stream section during a 24-hour day.

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determines all of the constituent in the sample.)

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata is the following:

Kingdom.....Animal
Phylum.....Arthropoda
Class.....Insecta
Order.....Ephemeroptera
Family.....Ephemeridae
Genus.....Hexageria
Species.....Hexagenia limbata

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WRD is used as an abbreviation for "Water-Resources Data" in the REVISED RECORDS paragraph to refer to State annual basic-data reports published before 1975.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER AND STATION NUMBER

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indentation in a list of stations in the front of the report. Each indentation represents one rank. This downstream order and system of indentation show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence the numbers are not consecutive. The complete 8-digit number for each station such as 12041000, which appears just to the left of the station name, includes the 2-digit part number "12" plus the 6-digit downstream order number "041000."

NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. See figure 1 below.

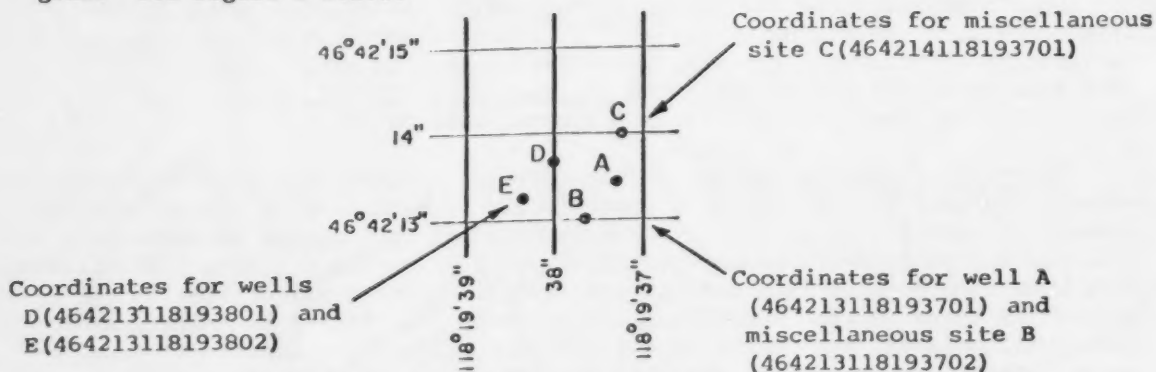


Figure 1. System for numbering wells and miscellaneous sites (latitude and longitude).

Local identifier well-numbering system

Local identifier well numbers used by the Geological Survey in the State of Washington are based on and show locations of wells according to the rectangular system for subdivision of public land, indicating township, range, section, and 40-acre tract within the section. For example, in the well number 25/43E-15M1, the part preceeding the hyphen indicates successively the township and range (T.25 N., R.43 E.) north and east of the Willamette base line and meridian. (Because all townships in Washington are north of the Willamette base line the letter "N", indicating north is omitted; and because most of the State is east of the Willamette meridian the letter "E" is sometimes omitted for those ranges east of the Willamette meridian, but "W" is always included when the range lies west of the Willamette meridian.) The first number following the hyphen indicates the section (sec.15) and the letter (M) given the 40-acre subdivision of the section as shown in figure 2. The last number (1) is the serial number of the well in that particular 40-acre tract. Thus, the first well recorded in the NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.15, T.25 N., R.43 E., would have the number 25/43-15M1, and the second well would have the number 25/43-15M2 or 25/43E-15M2. See figure 2 below:

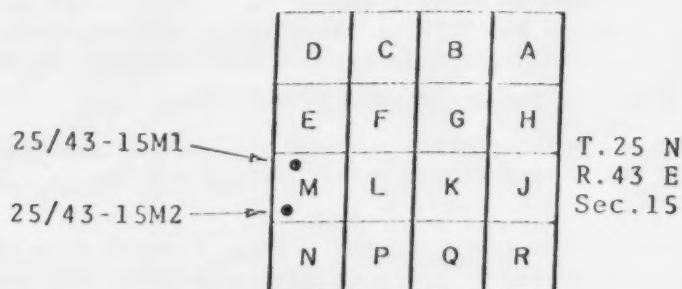


Figure 2. Local identifier well numbering system.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

National stream-quality accounting network (NASQAN) is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict area variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and asses long-term changes in streamflow and stream quality.

Pesticide program is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are samples represent major drainage basins in the conterminous United States.

Tritium network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard text-books, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), stepbackwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharge are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some northern stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lake and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations or revisions of previously published records,

type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from most accurate maps available. River mileage given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use, the datum of the present gage referred to National Geodetic Vertical Datum; and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum is explained in "DEFINITION OF TERMS" on page 7.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE", it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last those for the current year. Unless otherwise qualified, the maximum

discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with EXTREMES FOR THE CURRENT YEAR: if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

Skeleton rating tables are published, immediately following EXTREMES, for stream-gaging stations where they serve a useful purpose and the dates of applicability can be easily identified.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharge are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and

contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

Accuracy of field data and computed results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 cfs; to tenths between 1.0 and 10 cfs; to whole numbers between 10 and 1,000 cfs; and to 3 significant figures above 1,000 cfs. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other data available

Information of a more detailed nature than that published for most of the gaging stations such as observations of water temperatures, discharge measure-

ments, gage-height records, and rating tables is on file in the district office. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the district office.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and examination of data

Surface water samples for analyses usually are collected at or near gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data; the period of daily record for parameters that are measured on a daily basis (specific conductance, pH, dissolved oxygen, water temperature, sediment discharge, etc.); extremes for the period of daily record; extremes for the current year; and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight intake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diel temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

All temperature values in the daily tables are rounded to the nearest 0.5°C . Therefore, temperature values published in conjunction with water samples may be 0.1 to 0.2°C outside the range of the values published in the daily tables.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During period of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027 , the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the data

Only ground-water level data from a basic network of observations wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figures 1 and 2.

Measurements are made in many types of wells, under varying conditions of access and at different temperatures, hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to either mean sea level (msl) or land-surface datum (lsd). Mean sea level is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above mean sea level is given in the well description. The height of the measuring point (MP) above or below land surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error in determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

HYDROLOGIC CONDITIONS

The annual mean yearly runoff in eastern Washington during the 1979 water year ranged generally from about 60 to 70 percent of average. Streamflow was near normal for October. Precipitation was deficient October through January and streamflows throughout most of eastern Washington were below normal for this period. Precipitation in February was normal to excessive throughout eastern Washington and by March 1 the mountain snowpacks held a more encouraging outlook for water supply but were still below normal. Precipitation and streamflows, however, were then below average through June except for an area along the eastern border of the state which remained about normal. Precipitation and runoff were about normal July through September. Monthly and annual mean discharges are compared with medians at two gaging stations in Figure 3. Spokane River is regulated by Coeur d'Alene Lake. However, unadjusted flows were below normal except during May and September. Klickitat River flows remained below normal all year and were in the deficient range most months. Annual runoff of Klickitat River was only 55 percent of normal.

The ground-water level in the key observation well in eastern Washington was slightly above average in October but fell and remained below normal through February. The water level recovered to near normal after the February precipitation and remained near normal for the remainder of the water year.

Usable storage in Franklin D. Roosevelt Lake was generally at about 90 percent of normal during the year.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-four manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 1200 South Eads Street, Arlington, VA 22202 (authorized agent of the Superintendent of Documents, Government Printing Office. Prices are effective October 1978 but are subject to change.

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

- 1-D1. *Water temperature-influential factors, field measurement, and data presentation*, by H. H. Stevens Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages. \$1.60.
- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages. \$0.85.
- 2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages. \$1.90.
- 2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages. \$1.75.
- 3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages. \$1.00.
- 3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages. \$0.35.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages. \$0.40.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages. \$1.00.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages. \$0.35.
- 3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages. \$1.00.
- 3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages. \$1.40.
- 3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages. \$1.25.
- 3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages. \$1.20.
- 3-A12. *Fluorometric procedures for dye tracing*, by J. F. Wilson Jr.: USGS--TWRI Book 3, Chapter A12. 1968. 31 pages. \$0.35. Not currently available.
- 3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages. \$0.70.
- 3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages. \$2.50.
- 3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages. \$2.50.
- 3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages. \$2.50.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages. \$2.10.
- 4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4 Chapter A1. 1968. 39 pages. \$1.60.
- 4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages. \$1.20.
- 4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages. \$0.65.
- 4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages. \$0.75.
- 4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages. \$0.65.
- 4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages. \$1.10.
- 5-A1. *Methods for collection and analysis of water samples for dissolved minerals and gases*, by Eugene Brown, M. W. Skougstad, and M. J. Fishman: USGS--TWRI Book 5, Chapter A1. 1970. 160 pages. \$2.40.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages. \$0.80.
- 5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages. \$0.90.
- 5-A4.* *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P.E. Greeson, T.A. Ehlike, G.A. Irwin, B.W. Lium, and K.V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages. \$20.00.
- 5-A5.* *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages. \$16.00.
- 5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages. \$2.10.
- 7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages. \$2.30.
- 8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages. \$0.70.
- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages. \$1.10.

*These publications are available ONLY from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. They are in looseleaf format and are subscription items. Additional supplements will be issued to subscribers at no extra cost. Checks should be made payable to Superintendent of Documents. Requester should emphasize to Superintendent of Documents that this is a subscription item.

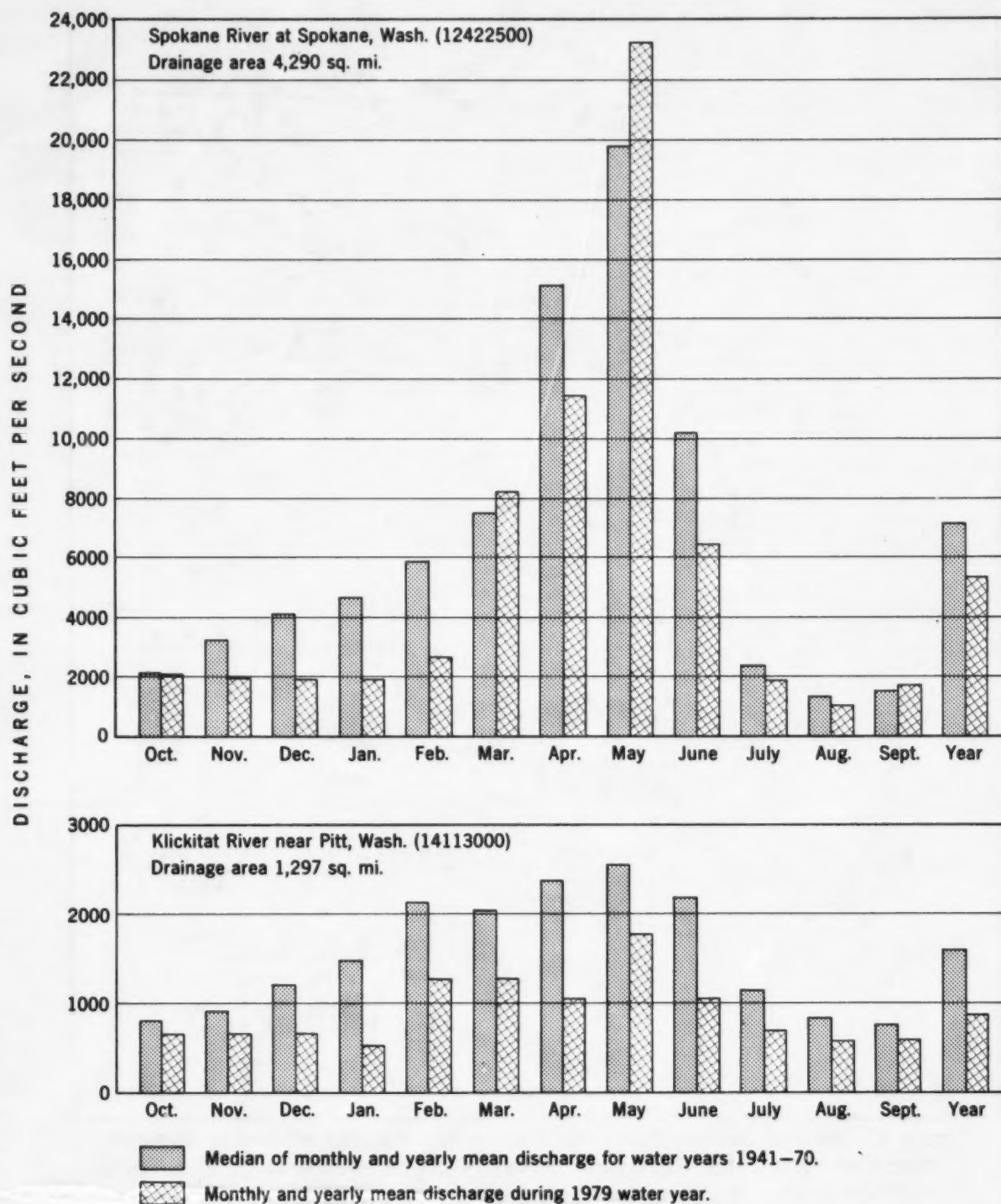


Figure 3. Discharge during 1979 water year compared with median discharge for period 1941-70 for two representative gaging stations.

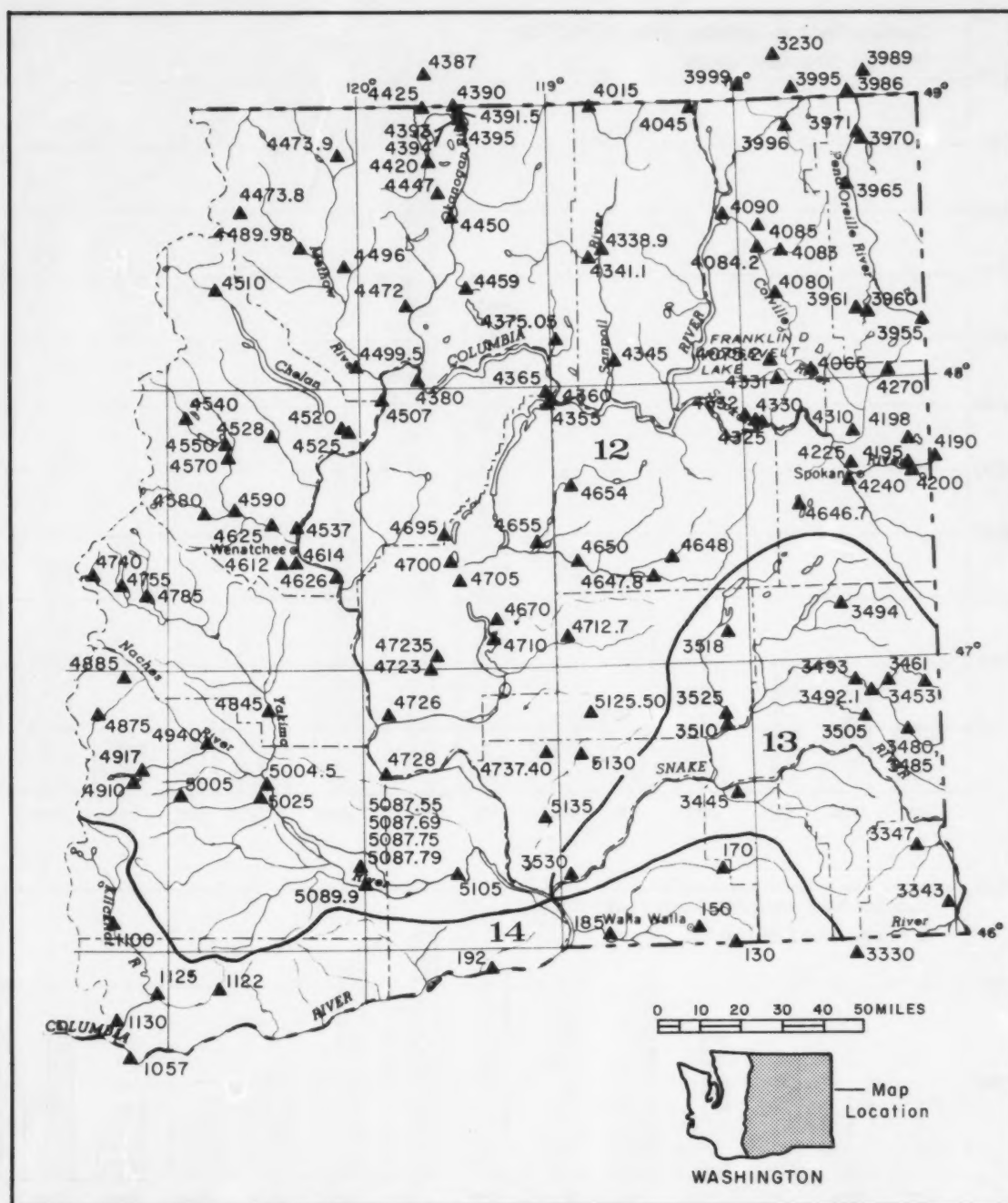


Figure 4. Map of Eastern Washington showing locations of gaging stations operated by the U.S. Geological Survey in cooperation with other agencies. Numbers shown are abbreviated versions of complete station number used in text. Part numbers are the large figures.

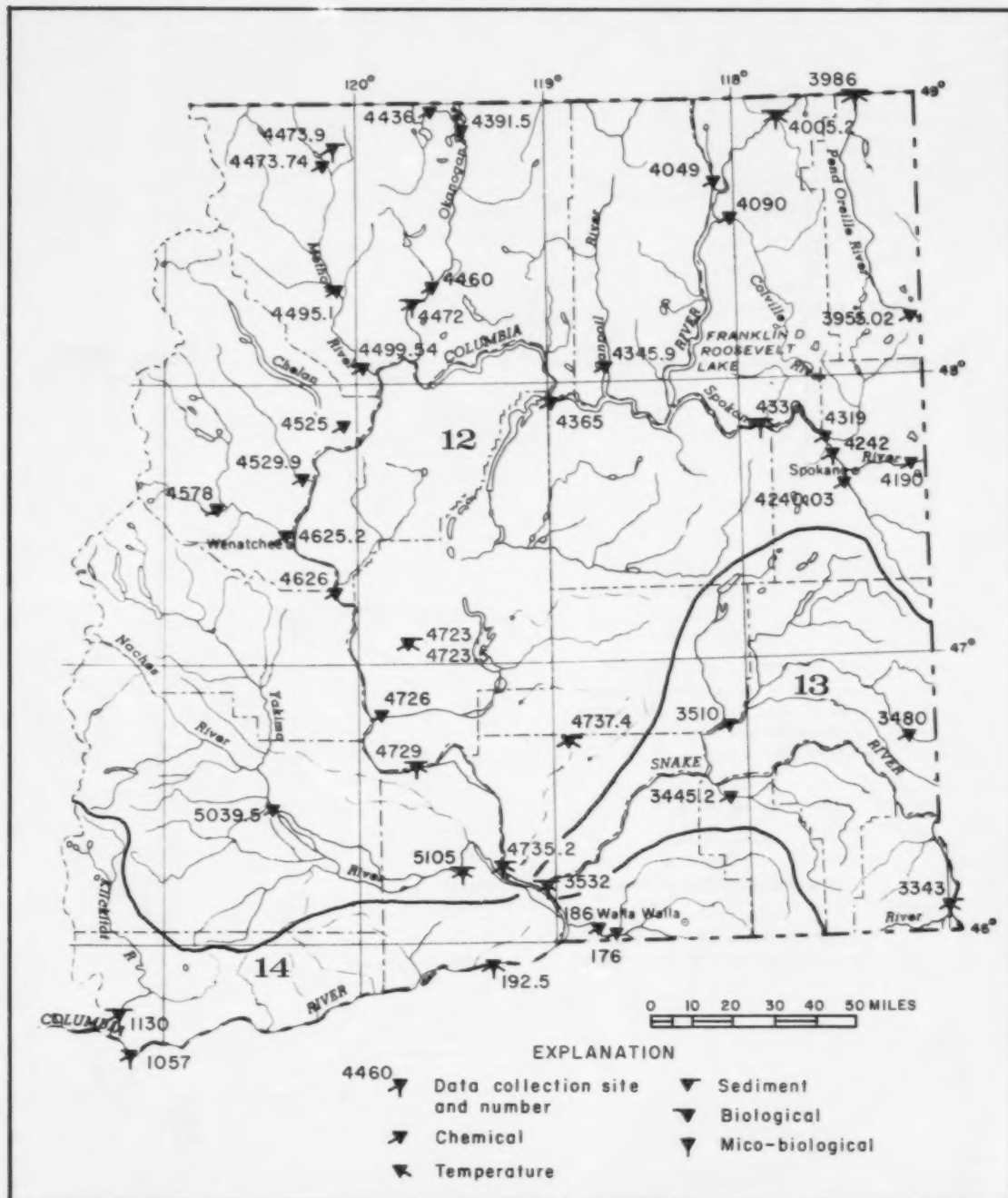


Figure 5. Map of Eastern Washington showing locations of surface-water-quality sampling stations operated by the U.S. Geological Survey in cooperation with other agencies. Numbers shown are abbreviated versions of complete station number used in text. Part numbers are the large figures.

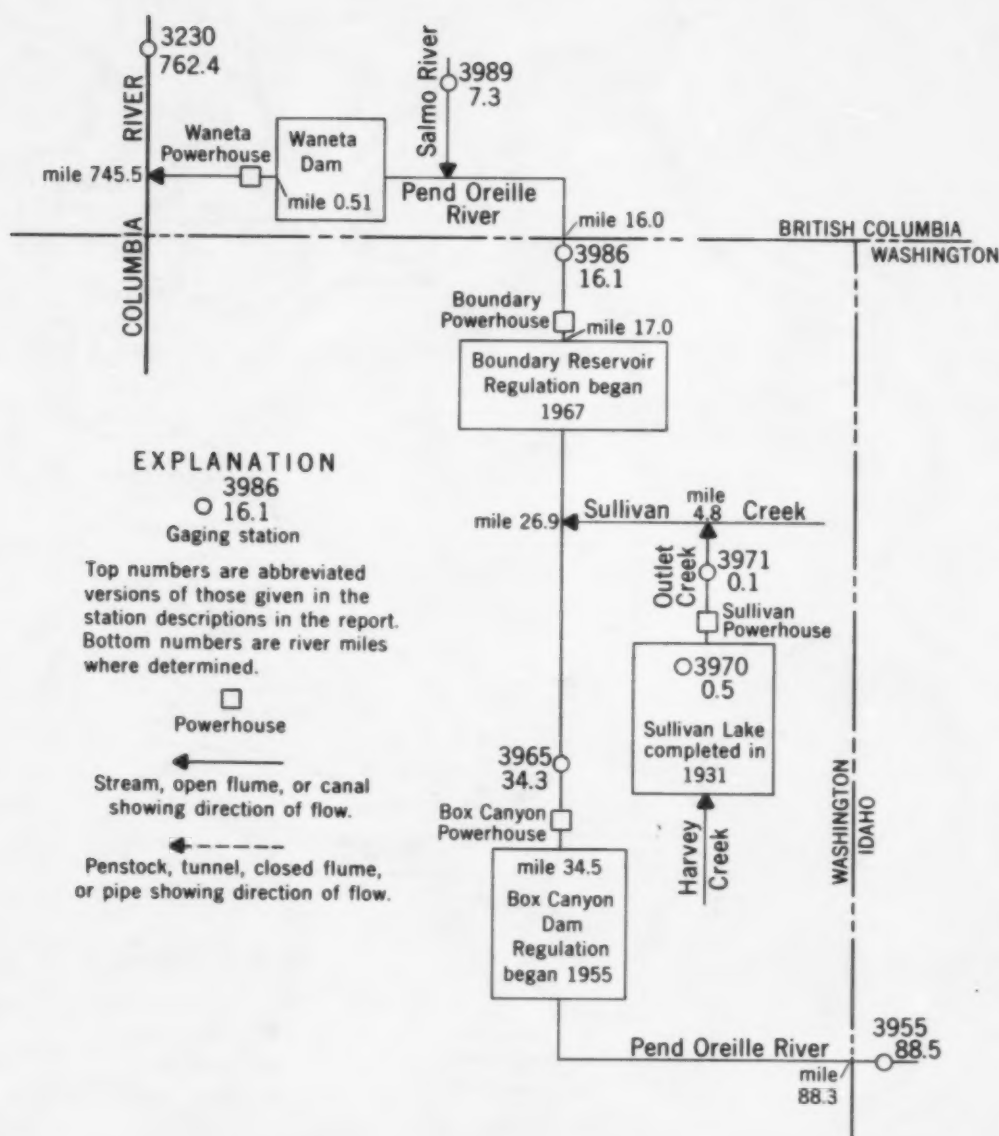


Figure 6. Gaging stations in Pend Oreille River basin and Columbia River above International Boundary.

COLUMBIA RIVER MAIN STEM

29

12323000 COLUMBIA RIVER AT BIRCHBANK, BRITISH COLUMBIA
(International gaging station)

LOCATION.--Lat 49°10'40" long 117°42'59", on right bank at Birchbank, British Columbia, 0.7 mi (1.1 km) downstream from Sullivan Creek, 7 mi (11.3 km) upstream from Trail, 11.7 mi (18.8 km) downstream from Kootenay River, 17.4 mi (28.0 km) upstream from international boundary, and at mile 762.4 (1,226.7 km).

DRAINAGE AREA.--34,000 mi² (88,100 km²), approximately.

PERIOD OF RECORD.--April 1913 to current year. Published as "at Trail, British Columbia" 1913-37.

REVISED RECORDS.--WSP 982: 1942. WSP 1216: 1949.

GAGE.--Water-stage recorder. Datum of gage is 1,329.90 ft (405.354 m) National Geodetic Vertical Datum of 1929, 1947 international joint adjustment, published as 1,338.00 ft (407.822 m) prior to October 1948. Prior to Oct. 1, 1937, nonrecording gage on highway bridge at site 6.8 mi (10.9 km) downstream at datum 16.27 ft (4.959 m) lower.

REMARKS.--Records excellent. Flow regulated by six major reservoirs, and by numerous small reservoirs and powerplants. Diversions above station for irrigation of about 25,000 acres (101 km²).

COOPERATION.--This station is maintained by Canada under agreement with the United States.

AVERAGE DISCHARGE.--60 years, 71,060 ft³/s (2,012 m³/s), 51,480,000 acre-ft/yr (63,500 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 377,000 ft³/s (10,700 m³/s) June 9, 1961, gage height, 50.05 ft (15.255 m); maximum gage height, 50.62 ft (15.429 m) June 11, 1948; minimum discharge observed, 8,940 ft³/s (253 m³/s) Feb. 3, 1937, gage height, 6.27 ft (1.911 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 120,000 ft³/s (3,400 m³/s) Jan. 12, gage height, 23.95 ft (7.300 m); minimum daily, 19,300 ft³/s (547 m³/s) Apr. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92500	58600	55800	93100	81900	35900	47900	64400	74900	58300	95700	72700
2	81800	62000	54600	95400	84700	35200	38600	70200	79100	53000	86600	70500
3	76100	63500	67400	86600	86100	35300	33500	68400	74200	52800	87300	68200
4	64100	64700	83300	98400	77500	34700	33800	71600	70100	52300	85500	68500
5	66200	66300	89800	98400	72500	38700	35100	75200	70200	47700	89200	68100
6	58100	64800	83600	94500	68800	39000	35100	78800	71000	46600	92200	68300
7	43800	64800	81300	98600	62200	38700	38000	59000	68400	47800	91900	66200
8	43500	65300	82300	108000	66100	40200	43100	56300	66500	53600	91600	68200
9	43500	71700	82600	115000	66300	40900	42400	57600	66600	62000	91700	63700
10	46900	71900	83000	113000	67200	42000	39200	56800	62200	62900	91900	59300
11	53900	71800	79800	111000	65300	43200	39300	55400	52700	63300	92100	58800
12	59000	65500	85200	118000	61200	43800	40600	57400	44400	66400	92800	59100
13	66400	69900	78500	118000	64000	44800	42100	56300	44300	66700	90300	59300
14	75900	60800	78900	117000	60900	45400	43400	56400	43200	64000	91900	59600
15	78500	61100	79300	117000	59700	46100	49100	57800	42600	69300	92000	59400
16	76500	69300	77500	118000	60100	46100	54200	59600	41600	75400	92100	56900
17	71800	57400	72900	116000	61800	47400	52700	60400	44300	75000	92200	54400
18	67300	50400	74700	114000	61400	48200	47700	60200	47600	74300	91800	54400
19	67500	59700	77900	112000	58900	48500	36300	59900	47000	73300	86800	54300
20	67700	63100	72700	111000	52900	48100	28900	60500	47400	73900	80100	54300
21	67400	57100	72000	103000	50800	48400	19300	58100	47500	73400	78800	54200
22	66800	62300	74300	90400	50900	47100	31600	60500	47900	78500	78800	54000
23	69900	58500	79700	79900	51100	46900	38400	62200	48200	82400	78800	50400
24	73800	58700	82700	78900	51100	55800	59900	65800	54500	82900	78600	46700
25	73300	55400	89800	79200	45500	57600	56400	68000	63700	91200	78600	46300
26	73800	53800	87700	79200	35900	55700	57300	70200	66300	94800	75600	46400
27	72900	49200	84900	79200	34400	55500	60700	74500	64500	95900	73800	46200
28	75700	57400	77000	79800	35400	49700	61400	81200	64000	96500	72900	46100
29	75300	57800	76500	81100	---	45300	61900	79600	63300	90100	72800	46300
30	66200	54800	78200	82000	---	45700	62200	78100	62600	88100	72800	53000
31	57400	---	82000	81600	---	46600	---	77300	---	87400	72900	---
TOTAL	2059100	1833200	2409000	3077500	1694300	1369500	1320200	2010900	1740900	2199800	2628900	1734000
MEAN	66420	61110	77710	99270	50510	44820	44010	64870	58030	70940	84800	57800
MAX	82500	71900	89000	119000	86100	57600	62200	81200	79100	96500	92200	72700
MIN	43500	49200	54600	78900	34600	34700	19300	55400	41600	46600	72800	46100
AC-FT	4084000	3636000	4778000	6104000	3361000	2756000	2619000	3984000	3453000	4362000	5214000	3439000
CAL YR 1978	TOTAL	23208300	MEAN	63580	MAX	131000	MIN	26100	AC-FT	46030000		
WTR YR 1979	TOTAL	24096500	MEAN	66020	MAX	118000	MIN	19300	AC-FT	47809000		

LOCATION.--Lat 48°10'50", long 117°02'00", in SE¹/₄SW¹/₄SW¹/₄ sec.24, T.56 N., R.6 W. (Boise Meridian), Bonner County, Hydrologic Unit 17010216, on left bank at Newport, 0.2 mi (0.3 km) upstream from bridge on U.S. Highway 2, 0.2 mi (0.3 km) east of Idaho-Washington State line, 3.6 mi (2.6 km) downstream from Albeni Falls Dam, and at mile 88.5 (142.4 km).

DRAINAGE AREA. -- 24,200 mi² (62,700 km²), approximately.

PERIOD OF RECORD.--June 1903 to September 1941, October 1952 to current year. Prior to October 1921, published as Clark Fork at Newport, Wash., October 1921 to September 1937, as Clark Fork at Priest River, Idaho, and October 1937 to September 1941, as Fond Oveille River at Priest River, Idaho.

REVISÉD RECORDS.--WSP 532: 1903-11.

GAGE.--Water-stage recorder. Datum of gage is 1,999.7 ft (609.509 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 22, 1929, nonrecording gages at Priest River, Newport, or Metaline Falls at various datums (see description, WSP 532, p. 92). Sept. 22, 1928, to Sept. 30, 1935, at datum 2,040.14 ft (621.835 m) National Geodetic Vertical Datum of 1929, and Oct. 1, 1935, to Sept. 30, 1941, at datum 2,000 ft (609.6 m) National Geodetic Vertical Datum of 1929, water-stage recorder at Priest River. Since December 1952, auxiliary water-stage recorder 2.74 mi (4.41 km) downstream from base gage.

REMARKS.--Records good. Flow regulated at Albeni Falls Dam and affected by storage in Pend Oreille Lake (see sta 12392500), Flathead Lake, Hungry Horse Reservoir, and several smaller reservoirs. Diversions above station for irrigation of about 354,000 acres (143,000 ha²).

AVERAGE DISCHARGE.--65 years (1904-41, 1953-79), 25,970 ft³/s (735 m³/s) 18,820,000 acre-ft/yr (23.2 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 136,000 ft³/s (3,850 m³/s) June 15, 1913, June 21, 1935, June 12, 1972; minimum, 1,280 ft³/s (36 m³/s) Sept. 1, 1961.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 64.0 ft (19.51 m) in June 1894, present site and datum, from water-surface profiles (discharge, about 200,000 ft³/s or 5,660 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 76,000 ft³/s (2,152 m³/s) May 29; maximum gage height, 43.89 ft (13.378 m) May 30; minimum discharge, 4,180 ft³/s (117 m³/s) Aug. 16; minimum gage height, 30.52 ft (9.302 m) Aug. 24.

DAT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22300	29300	19400	18200	20800	12300	13200	26300	67700	28200	13100	12700
2	22200	28100	18800	14000	20900	12600	13600	27000	62600	29400	16200	12800
3	22400	29900	14200	11600	21000	18300	14800	35300	56800	28700	15400	13000
4	22300	28500	14400	11300	17400	18100	14800	43100	53900	27800	14100	13200
5	22500	27500	15200	12400	15500	9770	14800	43600	53300	29300	13700	13200
6	24200	26500	17900	14700	13000	15600	14900	43700	52100	30100	13600	13100
7	25800	24300	20700	15300	12900	13900	13200	44200	50600	28700	13200	15300
8	25600	24400	19550	15300	12600	13000	8580	45100	47700	26600	11900	17400
9	25700	24200	17200	15200	12600	13200	14900	49800	47000	26800	11000	17400
10	25600	23800	15400	15300	12400	13100	16300	51700	48900	26000	10900	17600
11	25800	23700	17300	14500	12400	12900	16500	52600	37700	26000	10800	17600
12	25300	23800	17300	13100	12000	11900	19000	52900	38800	25200	14600	17600
13	23500	24600	18800	13300	12200	12300	21000	52600	45700	19700	9530	17600
14	23600	25200	18700	13100	12200	12800	21900	52600	51200	18400	8100	17600
15	23500	25200	16100	14300	11900	12900	21900	52100	54900	16400	7300	17400
16	23700	24800	15800	17000	12500	13000	18800	52700	57800	17400	6190	17300
17	23600	22500	17100	18200	12900	12900	17400	55400	55600	22300	5110	16700
18	23800	23400	17600	18500	15000	13000	16100	56700	50700	24300	11800	16300
19	23800	22600	19200	18400	16900	14700	16100	56800	43700	23900	13200	16200
20	23500	22800	19700	15400	17300	16200	18000	57200	42200	24400	19300	13900
21	23700	20400	16400	15200	16100	19100	21200	57300	41500	16300	9150	14300
22	23500	18300	15400	17600	13700	21200	21500	57700	43200	15200	12100	14100
23	23500	13600	14800	19800	12800	20800	15100	57900	47900	15300	13800	14100
24	23700	14500	14900	19700	12500	16600	10600	59500	50200	14700	13700	14000
25	23600	15300	15900	17200	12900	13100	10600	63800	49200	11000	11700	13900
26	27500	16600	18500	15400	12700	14500	12300	66100	44000	11300	11600	12700
27	31300	18500	17900	14500	12700	18000	16500	66200	40500	11100	13900	13700
28	32200	19900	17900	14200	12200	19100	20800	65700	35600	11000	16600	14200
29	31900	22200	17200	16300	---	19500	21200	72700	31300	11000	15900	14000
30	31600	22400	17300	19300	---	17000	23700	74900	29100	11100	15600	14000
31	31000	---	17900	21100	---	13600	---	73300	---	11100	14400	---

PEND OREILLE RIVER BASIN

31

12395502 PEND OREILLE RIVER AT U.S. HIGHWAY 2, AT NEWPORT, WA

LOCATION.--Lat 48°11'07", Long 117°02'00", in SE¼SW¼ sec.24, T.56 N., R.6 W. (Boise Meridian), Bonner County, Hydrologic Unit 17010216, at U.S. Highway 2 at Newport, 0.2 mi (0.3 km) east of Idaho-Washington State line, 0.2 mi (0.3 km) downstream from gage, 1.8 mi (2.9 km) downstream from Albeni Falls Dam, and at mile 88.7 (142.7 km).

DRAINAGE AREA.--24,200 mi² (62,700 km²), approximately.

PERIOD OF RECORD.--Water years 1959-69, 1973-74, 1976 to current year.

REMARKS.--Water years 1959-69, 1973-74, 1976 published as 12395500 "Pend Oreille River at Newport", later changed to 12395502 "Pend Oreille River at U.S. Highway 2, at Newport."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS, (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT. 1978										
10...	0715	25400	130	7.8	13.0	10	8.0	10.3	77	25
NOV										
08...	1108	24300	190	8.1	--	5	6.0	11.1	81	5
DEC										
14...	1200	19400	195	7.4	2.2	5	18	13.0	81	6
MAR. 1979										
06...	0915	17400	165	7.4	3.7	5	12	13.1	82	8
APR										
10...	0945	16200	240	7.4	5.9	5	8.0	12.0	79	4
MAY										
10...	0815	51600	195	7.0	9.3	15	8.0	11.0	87	15
JUN										
05...	0840	53700	220	7.8	14.5	10	4.0	9.6	74	14
JUL										
10...	1415	25800	190	7.7	19.5	5	15	9.1	73	5
AUG										
07...	0850	12900	163	7.3	21.7	8	15	8.3	83	12
SEP										
11...	0900	17700	185	7.6	18.2	5	15	9.2	76	3

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LITY (MG/L AS CACO3)
OCT. 1978									
10...	21	6.0	2.8	7	.1	.8	--	--	52
NOV									
08...	22	6.3	2.5	6	.1	.8	92	0	75
DEC									
14...	22	6.4	3.0	7	.1	1.8	92	0	75
MAR. 1979									
06...	22	6.5	3.2	8	.2	.9	90	0	74
APR									
10...	22	5.9	2.7	7	.1	.6	92	0	75
MAY									
10...	23	7.2	3.3	8	.2	1.1	88	0	72
JUN									
05...	21	5.3	2.2	6	.1	.8	74	0	61
JUL									
10...	20	5.5	2.3	6	.1	1.0	82	0	67
AUG									
07...	23	6.2	2.4	9	.1	.8	86	0	71
SEP									
11...	21	5.8	2.5	7	.1	.7	--	--	73

PEND OREILLE RIVER BASIN

12395502 PEND OREILLE RIVER AT U.S. HIGHWAY 2, AT NEWPORT, WA--Continued

WATER QUALITY DATA

DATE	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	ARSENIC DIS- SOLVED (UG/L AS AS)
OCT. 1978									
10...	--	17	2.7	.01	.01	.010	.01	.03	1
NOV									
08...	1.2	10	.9	.04	.00	.010	.00	.00	1
DEC									
14...	5.9	9.2	1.0	.03	.01	.000	.01	.03	1
MAR. 1979									
08...	5.7	13	1.3	.05	.02	.010	.02	.06	1
APR									
10...	5.9	7.6	.8	.04	.01	.010	.01	.03	1
MAY									
10...	14	12	1.2	.12	.03	.000	.02	.06	1
JUN									
05...	1.9	11	.8	.04	.04	.010	.00	.00	4
JUL									
10...	2.6	10	1.0	.16	.02	.010	.00	.00	1
AUG									
07...	6.9	13	.9	.02	.00	.010	.00	.00	2
SEP									
11...	--	11	.8	.02	.02	.000	.00	.00	1

DATE	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	LEAD, DIS- SOLVED (UG/L AS PB)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT. 1978									
10...	60	<1	0	2	17	.0	0	0	<3
NOV									
08...	0	0	0	2	2	.0	0	0	10
DEC									
14...	80	3	0	2	30	--	0	0	<3
MAR. 1979									
08...	0	1	0	3	40	.0	0	0	20
APR									
10...	70	2	0	2	10	.1	0	0	4
MAY									
10...	100	0	0	0	8	.2	0	0	10
JUN									
05...	100	1	0	1	10	1.2	0	0	10
JUL									
10...	70	<1	0	1	27	1.2	0	0	0
AUG									
07...	80	<1	0	2	20	.7	0	0	<3
SEP									
11...	60	<1	10	1	13	.6	0	0	<3

PEND OREILLE RIVER BASIN

33

12396500 PEND OREILLE RIVER BELOW BOX CANYON, NEAR IONE, WA

LOCATION.--Lat 46°46'52", long 117°24'55", in SE1/4 sec.10, T.38 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, on left bank 1,000 ft (305 m) downstream from Box Canyon Dam, 2.8 mi (4.5 km) north of Ione, and at mile 34.3 (55.2 km).

DRAINAGE AREA.--24,900 mi² (64,500 km²), approximately.

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Mar. 29, 1954, nonrecording gage at site 300 ft (91 m) upstream at same datum. Mar. 29, to Aug. 25, 1954, nonrecording gage at present site and datum. Since Aug. 20, 1967, auxiliary water-stage recorder 1.2 mi (1.9 km) downstream at same datum.

REMARKS.--Records good. Discharges for Dec. 13 to Jan. 4 and July 29 furnished by Pend Oreille County P.U.D. Flow completely regulated by Box Canyon Reservoir, 1,000 ft (305 m) upstream since June 1955 and by Pend Oreille Lake, Flathead Lake, Hungry Horse Reservoir, and by several smaller reservoirs and powerplants. In 1946 there were diversions for irrigation of 340,000 acres (1,380 km²) above the station.

AVERAGE DISCHARGE.--27 years, 28,230 ft³/s (799.5 m³/s) 20,450,000 acre-ft/yr (25,200 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 136,000 ft³/s (3,850 m³/s) June 13, 14, 1972; maximum elevation, 2,016.54 ft (614.032 m) June 14, 1972; minimum observed discharge, 125 ft³/s (3.54 m³/s) Apr. 23, 1967 (result of regulation).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1948 reached elevation of 2,018.00 ft (615.086 m), from flood-marks, discharge, 107,000 ft³/s (4,730 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 87,100 ft³/s (2,470 m³/s) May 29; maximum elevation, 2,004.78 ft (611.057 m) May 29; minimum, 3,950 ft³/s (112 m³/s) Aug. 25, elevation, 1,980.83 ft (603.757 m).

DISCHARGE IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22800	32100	22500	17300	20200	12400	13600	27400	70600	29200	10100	13400
2	22400	30700	17800	18100	20300	12400	13000	28400	67400	29600	14000	12500
3	22400	28800	14500	12400	20200	11600	13900	31100	60400	29900	15100	12600
4	22200	28900	17000	11600	10100	10400	14000	41200	57400	29100	13600	13000
5	23300	29100	14700	11500	15700	10400	14700	44400	56700	29100	13300	12100
6	22500	26300	15400	12700	13900	12700	13900	45200	53300	29400	13100	12200
7	25100	23400	17400	14500	12100	14800	14400	45500	53400	30000	12500	14200
8	25100	25000	20200	17600	12200	13400	10900	46300	50500	29500	11600	17300
9	25000	25000	18800	17400	12600	13400	13400	49500	51500	28000	10700	17900
10	24700	23200	16500	17000	12600	13300	16000	53400	43600	26700	11300	18400
11	24300	23700	15600	17100	13000	13200	17400	55100	41300	26200	10300	19100
12	24100	22300	16900	15000	12200	12700	19200	55500	37700	25500	10300	17900
13	23700	22400	17900	13400	12900	10000	21000	55600	48500	23100	8640	17000
14	21100	24400	19200	12000	12500	13600	23000	55700	51200	10000	8640	15400
15	21900	24400	17300	13000	12600	12400	23200	55900	56500	15400	7000	14700
16	22200	24000	15900	15400	12400	13300	20400	55400	57700	16700	6400	15900
17	21800	23800	16700	17000	11700	12000	19000	57300	56100	18700	4600	16100
18	22200	23100	17000	17700	12400	12400	17400	59000	56100	24200	7820	15900
19	21600	23100	18400	16000	19400	13200	17500	59000	49400	23700	12300	16100
20	21700	23000	19400	16000	18100	16300	17000	60000	44700	23500	12600	14300
21	22300	20900	18300	14700	16900	10000	21300	49900	43000	19700	13900	13600
22	22800	20400	16600	16400	15000	21300	22200	60000	42500	15700	14500	13500
23	22400	15400	15200	18100	13600	21500	19000	60200	49100	14700	19900	13500
24	22600	16100	14900	20100	12500	18900	12700	62100	51500	14600	9900	13100
25	23900	16200	15300	18900	11900	14700	10600	64900	51400	12100	6630	13300
26	25900	13500	17200	17100	12400	14900	12000	66200	48500	11000	17700	12400
27	28800	18700	19200	14100	12500	17500	13100	69600	43000	9900	9620	12600
28	24300	18300	16000	14100	12000	10500	20300	69000	40700	10500	4370	13100
29	28900	19400	16600	15500	---	20200	21900	76200	31000	11200	12700	13200
30	29100	21700	16700	17100	---	19400	23400	81500	20600	11300	14200	13500
31	38100	---	18600	20700	---	15600	---	76700	---	10200	14600	---
TOTAL	766400	688000	537100	492400	601200	457400	513100	1731000	1497500	647660	353540	437900
MEAN	24080	22960	17330	15800	14330	14750	17100	55060	49920	20890	11410	14590
MAX	30100	32100	22500	20700	20300	21500	23400	81500	70600	30000	19900	19100
MIN	21100	13500	14500	11500	11700	10600	10600	27400	28600	9900	4600	12100
AC-FT	1400000	1366000	1085000	976700	795000	907300	1018000	3435000	2970000	1285000	701300	868400
CAL YR 1978 TOTAL	9894700	MEAN	27110	MAX	64900	MIN	10500	AC-FT	19630000			
ETH YR 1979 TOTAL	8504720	MEAN	23300	MAX	81500	MIN	4000	AC-FT	16070000			

PEND OREILLE RIVER BASIN

12397000 SULLIVAN LAKE NEAR METALINE FALLS, WA

LOCATION.--Lat 48°50'21", long 117°17'15", in SW¼NE¼ sec.31, T.39 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010216, Colville National Forest, 200 ft (61 m) south of dam at outlet, 4.0 mi (6.4 km) southeast of Metaline Falls.

DRAINAGE AREA.--51.2 mi² (132.6 km²).

PERIOD OF RECORD.--May 1912 to September 1923, January 1959 to current year (fragmentary).

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Pend Oreille County Public Utility District). Prior to Sept. 30, 1923, nonrecording gage on dam at outlet of lake at different datum.

REMARKS.--Lake elevation is controlled by concrete dam. Some small diversions for domestic use.

COOPERATION.--Elevation record furnished by Public Utility District No. 1 of Pend Oreille County.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 2,589.94 ft (789.414 m) July 15, 1975; minimum observed, 2,564.00 ft (781.507 m) on many days during period Jan. 6 to Mar. 25, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum elevation observed, 2,588.35 ft (788.929 m) Oct. 1; minimum observed, 2,564.32 ft (781.605 m) Jan. 31.

ELEVATION, IN FEET NGVD, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2588.35	2588.70	---	---	---	2564.45	---	2566.20	2579.40	2582.80	---	2582.60
2	2588.25	2588.30	---	2564.50	---	---	---	2566.55	2579.40	---	---	---
3	2588.25	2579.90	---	---	---	---	---	2566.90	2579.90	---	2583.00	---
4	2588.25	2579.50	---	---	---	---	---	2567.30	2580.20	---	---	---
5	2588.25	2579.10	---	---	---	---	2564.48	2568.00	2580.40	---	---	2582.63
6	2588.24	2578.85	---	---	---	---	---	2568.90	2580.65	---	---	---
7	2588.20	2578.50	2565.52	---	---	---	---	2569.45	2580.90	---	---	2582.60
8	2588.20	2578.30	---	---	---	---	---	2569.90	2581.00	2583.20	---	---
9	2588.20	2578.15	---	---	---	---	---	2570.30	2581.20	---	---	---
10	2588.20	2577.35	---	---	---	---	---	2570.60	2581.30	---	2582.80	---
11	2588.10	2577.00	---	2564.42	---	---	---	2570.90	2581.40	---	---	---
12	2587.80	2576.70	---	---	---	---	2564.55	2571.20	2581.50	---	---	---
13	2587.50	2576.40	---	---	---	---	2564.58	2571.60	2581.60	---	---	---
14	2587.10	2576.01	2564.98	---	---	---	2564.60	2571.90	2581.75	---	---	---
15	2586.90	2575.70	---	---	2564.40	2564.42	2564.65	2572.30	2581.90	2583.20	---	2582.55
16	2586.50	2575.40	---	---	---	---	2564.70	2572.75	2581.95	---	---	---
17	2586.30	2575.10	---	---	---	---	2564.80	2573.20	2582.05	---	2582.70	---
18	2585.90	2574.00	---	---	---	---	2564.90	2573.60	2582.15	---	---	---
19	2585.65	2573.10	---	---	---	---	2564.95	2574.00	---	---	---	---
20	2585.20	2572.00	---	---	---	---	2565.00	2574.40	2582.30	---	---	---
21	2584.40	2571.20	---	---	---	---	2565.00	2574.80	2582.40	---	---	---
22	2584.40	2570.30	---	---	---	2564.47	2565.10	2575.30	2582.50	2583.20	---	2582.45
23	2584.10	2569.60	---	---	---	---	2565.10	2575.70	2582.50	---	---	---
24	2583.80	2568.90	---	---	---	---	2565.15	2576.40	2582.55	---	2582.70	---
25	2583.40	2568.40	---	---	---	---	2565.20	2576.90	2582.58	---	---	---
26	2583.00	2567.90	---	---	---	---	2565.30	2577.50	2582.65	---	---	---
27	2582.70	---	---	---	---	---	2565.35	2577.90	2582.70	---	---	---
28	2582.25	---	---	---	---	---	2565.48	2578.30	2582.70	---	---	---
29	2581.90	---	---	---	---	2564.48	2565.70	2578.60	2582.70	2583.15	---	2582.30
30	2581.60	2566.54	---	---	---	---	2565.90	2578.75	2582.70	---	2582.55	---
31	2581.10	---	2564.32	---	---	---	---	2579.10	---	---	---	---
MEAN	2585.89	---	---	---	---	---	---	2572.88	---	---	---	---
MAX	2588.35	---	---	---	---	---	---	2579.10	---	---	---	---
MIN	2581.10	---	---	---	---	---	---	2566.20	---	---	---	---

PEND OREILLE RIVER BASIN

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12397100 OUTLET CREEK NEAR METALINE FALLS, WA

LOCATION.--Lat 48°50'42", long 117°17'12", in SW¼Sec.30, T.39 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010216, Colville National Forest, on right bank 0.1 mi (0.2 km) upstream from mouth, 0.4 mi (0.6 km) downstream from Sullivan Lake Dam, and 4 mi (6.4 km) east of Metaline Falls.

DRAINAGE AREA.--51.5 mi² (133.4 km²).

PERIOD OF RECORD.--January 1959 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,540.2 ft (774.25 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records excellent except those for Dec. 26 to Feb. 14, which are fair. Flow completely regulated by Sullivan Lake 0.4 mi (0.6 km) upstream (see sta 12397000). No diversions.

AVERAGE DISCHARGE.--20 years, 73.1 ft³/s (2.070 m³/s), 52,900 acre-ft/yr (65.3 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 924 ft³/s (26.2 m³/s) May 31, 1969, gage height, 12.26 ft (3.737 m); minimum 1.6 ft³/s (0.045 m³/s) part of each day Apr. 9-12, 1973, gage height, 8.76 ft (2.670 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 728 ft³/s (20.6 m³/s) Nov. 17, gage height, 11.77 ft (3.588 m); minimum daily, 1.9 ft³/s (0.054 m³/s) Apr. 26-29, May 2, minimum gage height, 8.77 ft (2.673 m) Apr. 25-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	266	135	11	14	24	26	2.0	8.5	14	14	15
2	21	263	120	12	13	24	26	1.9	8.9	14	14	15
3	21	260	106	13	12	23	26	2.0	9.3	14	14	15
4	21	257	95	14	13	22	26	2.2	9.8	14	14	15
5	21	251	85	14	13	25	26	2.4	11	14	14	15
6	21	248	77	14	15	25	26	2.4	11	15	14	15
7	21	245	68	13	14	25	27	2.6	10	14	14	15
8	21	241	65	13	17	25	27	2.6	11	14	14	15
9	21	239	63	13	18	25	28	2.8	11	14	14	15
10	21	236	59	13	19	25	28	3.0	12	14	14	15
11	97	230	55	13	19	25	28	3.0	12	14	14	15
12	227	227	52	13	20	24	18	3.2	12	14	14	15
13	224	224	49	13	23	24	2.2	3.4	12	14	14	15
14	221	218	45	13	25	24	2.0	3.4	13	14	15	15
15	221	216	43	13	23	24	2.0	3.4	13	14	15	15
16	227	213	40	13	23	25	2.0	3.9	14	14	15	15
17	249	488	37	13	23	25	2.2	3.9	14	14	15	15
18	249	487	36	13	23	25	2.0	4.2	14	14	15	15
19	245	450	34	13	22	25	2.0	4.4	13	14	15	15
20	257	602	33	14	22	25	2.0	4.4	13	15	15	15
21	254	560	33	14	22	25	2.0	4.7	13	15	15	15
22	254	506	31	14	22	25	2.0	5.0	13	15	15	15
23	251	482	29	14	22	25	2.0	5.4	13	15	15	15
24	248	412	29	14	22	25	2.0	5.9	13	15	14	15
25	245	349	28	14	22	25	2.0	6.3	13	15	15	15
26	242	292	24	14	25	26	1.9	6.3	13	15	15	15
27	257	248	22	14	25	26	1.9	6.6	13	15	15	15
28	282	210	20	14	25	26	1.9	7.0	13	15	15	15
29	279	175	16	14	---	26	1.9	7.4	13	15	15	15
30	276	153	13	14	---	26	2.0	7.7	13	15	15	15
31	273	---	11	13	---	26	---	8.1	---	14	15	---
TOTAL	5269	9546	1553	414	558	770	348.0	131.7	362.5	446	451	450
MEAN	170	310	50.1	13.4	19.9	24.8	11.6	4.25	12.1	14.4	14.5	15.0
MAX	282	687	135	14	25	26	28	8.1	14	15	15	15
MIN	21	153	11	11	12	22	1.9	1.9	8.5	14	14	15
AC-FT	18458	18940	3080	821	1110	1530	690	261	719	885	895	893

CAL YR 1978 TOTAL 27040.4 MEAN 74.2 MAX 687 MIN 1.7 AC-FT 53730
WTH YR 1979 TOTAL 20301.2 MEAN 55.6 MAX 487 MIN 1.9 AC-FT 48270

PEND OREILLE RIVER BASIN

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY
(International gaging station)

LOCATION.--Lat 48°59'56", long 117°21'09", in SW¼NE¼ sec.3, T.40 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, on left bank 0.1 mi (0.2 km) upstream from international boundary, 0.9 mi (1.4 km) downstream from Boundary Dam, 6.0 mi (9.7 km) downstream from Slate Creek, 9.7 mi (15.6 km) north of Meteline Falls and at mile 16.1 (25.9 km).

DRAINAGE AREA.--25,200 mi² (65,300 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1908 to September 1910 (gage heights only), October 1912 to current year. Prior to October 1928, nonrecording gage at Meteline Falls at datum approximately 1,983.4 ft (604.54 m) National Geodetic Vertical Datum of 1929. Dec. 20, 1928, to Sept. 30, 1964, water-stage recorder at site 1.3 mi (2.1 km) upstream at datum 1,721.18 ft (524.616 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).
current records published for present site December 1962 to September 1964.

REVISED RECORDS.--WSP 442: 1913. WSP 1716: 1919.

GAGE.--Water-stage recorder. Datum of gage is 1,700 ft (518.21 m) city of Seattle Boundary Dam datum. Prior to Dec. 20, 1928, nonrecording gage at Meteline Falls at datum approximately 1,983.4 ft (604.54 m) National Geodetic Vertical Datum of 1929. Dec. 20, 1928, to Sept. 30, 1964, water-stage recorder at site 1.3 mi (2.1 km) upstream at datum 1,721.18 ft (524.616 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records excellent. Flow regulated by Boundary Reservoir 0.9 mi (1.4 km) upstream beginning April 1967 and by Box Canyon Reservoir beginning June 1955, Pend Oreille Lake beginning June 1952 (see sta 12392500), Flathead Lake beginning April 1958 (see sta 12371500), Hungry Horse Reservoir beginning September 1951 (see sta 12362000) and by several smaller reservoirs and powerplants. In 1946 there were diversions for irrigation of 340,000 acres (1,380 km²) above the station and there probably has not been any appreciable change since that time.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--67 years, 27,270 ft³/s (772.3 m³/s), 19,760,000 acre-ft/yr (24,400 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 171,300 ft³/s (4,850 m³/s) June 13, 1948, gage height, 60.25 ft (18.384 m), site and datum then in use; minimum daily, 200 ft³/s (5.66 m³/s) Aug. 12, 1967, result of regulation; minimum observed, 109 ft³/s (3.09 m³/s) Apr. 23, 1967, result of regulation.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1894 reached a stage of 69.0 ft (21.03 m), from floodmarks, at site and datum 1.3 mi (2.1 km) upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 100,000 ft³/s (2,830 m³/s) May 30, gage height, 38.00 ft (11.582 m); minimum daily, 4,900 ft³/s (139 m³/s) Aug. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23100	32600	23600	19800	19900	13900	11100	24500	64900	28700	9600	12900
2	22800	31100	18800	19400	20500	13100	12600	24800	63200	29100	14400	13100
3	22700	29600	15400	16700	19700	11900	15400	29600	60100	29400	15300	11400
4	22600	29900	17400	16600	18600	10600	15900	41400	55900	28800	14300	12200
5	23100	29800	14800	10300	17600	12900	14800	45800	54600	28900	14400	14400
6	23300	28100	16600	8820	15300	11600	15700	46500	51600	29200	14500	16400
7	24900	25300	17200	12800	12900	14600	15600	46100	51100	28300	13800	16000
8	24600	26900	20700	14800	13500	14000	9860	46400	48300	29400	12500	16900
9	24600	25600	19900	16800	15800	12100	15600	48100	46900	28000	10800	14700
10	24400	24700	16900	17500	13400	14200	16400	47700	45000	26800	13400	16700
11	25800	24700	15600	16300	12500	14000	16900	41000	39800	27800	11800	17100
12	26800	23700	18200	14700	13500	12600	18800	52700	37100	28800	6690	17700
13	24700	24200	15100	11400	13100	11400	22300	52900	42200	25800	11600	17500
14	24400	25800	19100	10500	13400	14700	20500	42800	47100	18600	8840	17200
15	24300	25900	17500	16900	12400	14900	21600	53100	50700	14100	9050	14900
16	24300	25500	16200	14400	14700	14800	22900	53100	54400	17300	8220	16400
17	24200	25300	16400	17600	14500	12800	17900	56800	53900	20200	6750	17100
18	24300	24100	17100	17400	15900	16100	16300	56700	48100	21100	8620	16600
19	24300	24300	18400	18400	15900	16100	16300	56700	48100	23600	13400	16400
20	24500	24300	19600	17700	20100	17500	18100	56800	43700	24300	14800	15700
21	24600	22500	18900	13400	17400	18500	20500	57100	42200	22000	14100	13000
22	24700	21300	16200	16200	16700	19600	19100	57000	39900	17000	16200	14800
23	24800	17000	17500	19100	14300	20900	19300	57300	44300	16900	19800	13600
24	24100	16600	15700	20100	10700	20200	15500	58300	47900	15900	27800	14000
25	24000	17000	14100	19300	11300	17500	12500	61400	48300	9530	5900	14000
26	24900	14500	17500	18400	13900	16100	15700	44700	47300	13800	4900	14400
27	25200	18900	19400	14100	13000	15500	19200	64400	42400	10700	5640	12400
28	30300	18700	20300	12400	13700	19700	19900	60000	40200	10700	5380	14700
29	29900	20800	18400	15500	---	20800	21600	69100	35300	10200	7060	12900
30	29800	23100	16600	18400	---	20800	22900	78700	28700	12100	14400	14100
31	38900	---	15400	19300	---	16200	---	74800	---	12400	15600	---
TOTAL	776900	721700	544900	486320	420800	476100	522960	1854600	1433800	657830	369550	448600
MEAN	25060	24060	17580	15750	13500	15360	17430	53370	47790	21220	11920	14050
MAX	30900	32600	23600	20100	20500	20900	22900	78700	69900	29400	27800	17700
MIN	22600	14500	14100	8820	10700	10600	9860	24500	26700	9530	4900	11400
AC-FT	1541000	1431000	1061000	966600	833100	944300	1037000	3242000	2844000	1305000	733000	889800
CAL YR 1978	TOTAL	10005790	MEAN	27430	MAX	65200	MIN	9390	AC-FT	20910000		
WTH YR 1979	TOTAL	8515260	MEAN	23330	MAX	78700	MIN	4400	AC-FT	16898000		

PEND OREILLE RIVER BASIN

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12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued
(National Stream-quality Accounting Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1974 to current year.

WATER TEMPERATURE: April 1974 to current year.

INSTRUMENTATION.--Water-quality monitor since April 1974.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. In addition to the water-quality monitor record, samples were collected approximately once a month.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 242 micromhos July 17, 1974; minimum, 62 micromhos April 25, 1975.

WATER TEMPERATURES: Maximum, 24.5°C July 28-30, 1975; minimum, 0.0°C at times during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 190 micromhos Feb. 12; minimum recorded, 141 micromhos May 24.

WATER TEMPERATURES: Maximum recorded, 23.0°C Aug. 4; minimum recorded, 0.0°C Dec. 29-31, Jan. 1 to Feb. 22.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UN-WF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT. 1978											
31...	1130	30600	168	8.2	10.0	.30	11.7	1	1	79	4
NOV											
29...	1645	25100	174	7.6	1.4	.90	12.5	<1	<1	85	10
DEC											
28...	1430	24200	179	8.2	.6	.70	--	<1	27	83	6
JAN. 1979											
24...	1500	24000	170	8.0	.1	.80	12.0	1	<1	82	1
FEB											
28...	1400	14100	178	8.1	1.1	.35	13.3	1	<1	89	18
MAR											
28...	1300	22800	176	8.3	5.6	2.0	12.5	<1	<1	82	6
APR											
25...	1630	11900	166	7.8	7.6	1.0	12.4	<1	1	76	12
MAY											
24...	1350	57400	137	7.8	13.0	1.6	12.8	<1	2	75	16
JUN											
28...	1005	40100	156	8.0	17.5	2.0	11.1	4	4	77	14
JUL											
24...	1415	15300	156	--	22.2	1.2	8.4	<1	410	76	5
AUG											
29...	1500	5400	168	8.2	22.2	1.2	7.7	<1	140	76	2
SEP											
25...	1330	17900	166	8.3	18.6	.70	8.5	<1	24	83	8

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINEITY (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT. 1978											
31...	22	5.8	2.7	7	.1	.9	75	9.6	1.0	.1	6.3
NOV											
29...	24	6.2	3.0	7	.1	.9	75	11	1.6	.1	6.9
DEC											
28...	23	6.1	2.6	6	.1	.8	77	9.1	1.0	.1	6.2
JAN. 1979											
24...	23	6.0	2.6	6	.1	.6	81	9.6	1.0	.1	6.3
FEB											
28...	25	6.5	2.9	7	.1	.7	71	11	.9	.1	6.4
MAR											
28...	23	5.9	2.8	7	.1	.9	76	8.7	1.0	.1	7.5
APR											
25...	21	5.8	2.7	7	.1	.9	64	12	.9	.1	7.5
MAY											
24...	19	6.6	2.5	7	.1	1.0	59	8.7	1.0	.1	6.9
JUN											
28...	21	6.0	2.8	7	.1	.8	63	12	1.4	.1	5.9
JUL											
24...	21	5.8	2.4	6	.1	1.0	71	12	1.4	.1	6.6
AUG											
29...	21	5.8	2.9	7	.1	1.3	74	11	1.1	.1	5.8
SEP											
25...	23	6.3	3.2	8	.2	1.8	75	9.0	1.6	.1	3.5

PEND OREILLE RIVER BASIN

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

WATER QUALITY DATA

DATE	SOLIDS- RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS- SUM OF CONSTITUENTS DIS- SOLVED (MG/L)	SOLIDS- DIS- SOLVED (TONS PER AC-FT)	SOLIDS- DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)
OCT , 1978										
31...	86	94	.12	6970	.01	.00	.21	.21	.00	.22
NOV										
29...	103	99	.14	6980	.02	.01	.18	.19	.00	.26
DEC										
28...	101	95	.14	5600	.06	.00	.14	.14	.02	.12
JAN , 1979										
24...	102	98	.14	6610	.04	.03	.02	.05	.00	.05
FEB										
28...	91	96	.12	3460	.02	.04	.14	.18	.09	.09
MAR										
28...	89	96	.12	5480	.01	.03	.14	.17	.08	.09
APR										
25...	98	89	.13	3150	.02	.01	.14	.15	.09	.06
MAY										
24...	73	81	.10	11300	.04	.07	.26	.33	.25	.08
JUN										
28...	89	88	.12	9640	.01	.05	.13	.18	.17	.01
JUL										
24...	85	93	.12	3510	.06	.06	.11	.17	.00	.17
AUG										
29...	96	94	.13	1400	.02	.03	--	--	--	--
SEP										
25...	96	94	.13	4640	.02	.02	.88	.90	.24	.66

DATE	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDE TOTAL (MG/L AS C)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. & FINER THAN .062 MM
OCT , 1978										
31...	.22	.97	.010	.000	--	1.5	.2	3	243	93
NOV										
29...	.21	.93	.020	.010	1.7	--	--	2	136	--
DEC										
28...	.20	.89	.000	.010	1.6	--	--	3	196	67
JAN , 1979										
24...	.09	.40	.000	.000	--	--	.2	4	259	76
FEB										
28...	.20	.89	.030	.090	2.3	--	--	4	152	83
MAR										
28...	.18	.80	.020	.010	2.1	--	--	5	308	69
APR										
25...	.17	.75	.000	.000	--	1.6	1.0	5	161	97
MAY										
24...	.37	1.6	.010	.030	2.5	--	--	6	930	80
JUN										
28...	.19	.84	.030	.000	3.7	--	--	7	758	75
JUL										
24...	.23	1.0	.020	.030	--	2.7	.3	5	207	74
AUG										
29...	--	--	.100	.110	1.4	--	--	3	44	96
SEP										
25...	.92	4.1	.040	.020	2.7	--	--	4	193	94

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDE RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDE RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT , 1978										
31...	1130	1	1	0	.40	100	5	5	0	10
JAN , 1979										
24...	1500	1	1	0	0	70	21	18	3	10
APR										
25...	1630	2	1	100	20	80	1	0	<1	0
JUL										
24...	1415	3	2	0	0	90	0	0	<1	0

PEND OREILLE RIVER BASIN

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12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

WATER QUALITY DATA

DATE	CHROMIUM, SUS- PENDE RECOV. (UG/L AS CR)	CHROMIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDE RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDE RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDE RECOV- ERABLE (UG/L AS FE)
OCT , 1978										
31...	10	0	1	1	0	4	3	1	50	50
JAN , 1979										
24...	10	0	1	0	<3	50	41	9	50	40
APR										
25...	0	0	0	0	<3	2	1	1	150	130
JUL										
24...	0	0	0	0	<3	4	1	3	70	60

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDE RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDE RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDE RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)
OCT , 1978										
31...	0	26	26	0	10	10	0	.0	.0	.0
JAN , 1979										
24...	10	75	66	9	0	0	3	.0	.0	.0
APR										
25...	20	92	92	0	10	7	3	.1	.1	.0
JUL										
24...	10	15	12	3	10	5	5	.0	.0	.1

DATE	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, SUS- PENDE RECOV- ERABLE (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDE RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT , 1978									
31...	0	0	0	0	0	0	20	20	0
JAN , 1979									
24...	0	0	0	1	1	0	50	40	10
APR									
25...	0	0	0	0	0	0	50	50	<3
JUL									
24...	0	0	0	0	0	0	30	20	9

DATE	TIME	PERI- PHYTON BIOMASS ASH WEIGHT G/50 M	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/50 M	CHLOR-A PERI- PHYTON TOTAL CHROMO- GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI- PHYTON TOTAL CHROMO- GRAPHIC FLUOROM (MG/M2)	LENGTH OF EXPO- SURE (DAYS)
OCT , 1978						
31...	1130	17.0	18.8	8.93	.000	40

PEND OREILLE RIVER BASIN

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

SPECIFIC CONDUCTANCE (MICRONHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	172	170	171	175	174	175	182	180	181
2	---	---	---	171	170	170	176	175	176	183	181	182
3	---	---	---	172	171	171	178	176	177	184	181	182
4	---	---	---	172	171	171	179	177	178	185	182	183
5	---	---	---	173	171	172	179	178	179	186	183	184
6	---	---	---	172	171	172	181	178	179	186	184	185
7	---	---	---	173	172	172	181	179	180	187	185	186
8	---	---	---	173	172	172	180	179	180	187	186	187
9	---	---	---	173	172	172	179	178	179	187	186	187
10	---	---	---	174	172	172	179	178	178	187	185	186
11	---	---	---	174	172	172	180	178	178	186	184	185
12	---	---	---	174	173	173	179	178	179	185	183	183
13	---	---	---	175	173	174	180	179	179	183	183	183
14	---	---	---	175	173	174	179	178	179	184	182	183
15	---	---	---	175	174	174	179	178	179	184	182	183
16	---	---	---	176	174	175	179	178	178	185	181	182
17	---	---	---	176	175	176	179	178	179	184	180	182
18	---	---	---	175	174	174	179	178	179	184	179	181
19	---	---	---	174	173	173	179	179	179	181	179	179
20	---	---	---	173	173	173	179	179	179	179	178	178
21	---	---	---	173	172	173	179	179	179	180	177	178
22	---	---	---	174	173	173	180	179	179	179	176	177
23	---	---	---	174	173	173	180	180	180	177	175	176
24	---	---	---	174	173	174	181	180	181	178	176	177
25	---	---	---	174	173	173	181	180	181	178	177	177
26	---	---	---	174	173	174	181	180	181	177	176	177
27	---	---	---	175	173	174	181	181	181	178	176	177
28	---	---	---	176	174	175	181	180	181	179	176	177
29	---	---	---	175	174	175	181	179	180	179	176	177
30	---	---	---	175	174	175	180	178	180	177	176	176
31	171	169	170	---	---	---	181	179	180	177	176	176
MONTH	171	169	170	176	170	173	181	174	179	187	175	181

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	177	176	177	185	178	180	183	173	176	158	154	155
2	177	176	177	180	178	179	184	173	176	156	154	155
3	178	177	177	184	178	180	185	174	177	156	154	155
4	179	177	178	186	179	180	181	175	177	155	154	155
5	180	179	179	---	---	---	181	173	176	155	154	155
6	182	180	180	---	---	---	181	172	174	154	154	154
7	182	181	182	---	---	---	172	168	169	154	154	154
8	183	181	181	---	---	---	176	165	168	154	153	154
9	184	181	182	---	---	---	178	167	170	153	151	152
10	184	182	184	---	---	---	172	169	171	150	148	149
11	184	183	184	---	---	---	181	171	174	153	150	152
12	190	184	185	---	---	---	183	172	175	154	153	154
13	186	183	184	---	---	---	174	172	173	152	150	151
14	185	182	184	---	---	---	172	169	171	152	149	151
15	184	181	183	---	---	---	170	168	169	151	146	149
16	187	181	182	---	---	---	171	170	170	146	145	145
17	188	180	182	---	---	---	172	170	171	145	143	144
18	186	178	181	---	---	---	173	170	172	145	143	144
19	178	177	178	---	---	---	174	171	172	145	143	144
20	178	175	176	---	---	---	174	171	172	146	143	145
21	181	175	177	---	---	---	172	170	171	147	145	146
22	177	175	176	---	---	---	171	168	169	147	145	146
23	181	175	177	---	---	---	168	166	167	147	144	146
24	181	176	178	---	---	---	171	164	166	144	141	142
25	187	178	181	---	---	---	173	163	165	---	---	---
26	186	178	180	---	---	---	165	161	163	---	---	---
27	184	179	180	---	---	---	165	162	164	---	---	---
28	185	178	180	180	179	180	166	163	165	---	---	---
29	---	---	---	180	179	180	166	163	165	---	---	---
30	---	---	---	180	177	179	164	158	161	---	---	---
31	---	---	---	180	176	178	---	---	---	---	---	---
MONTH	190	175	180	186	176	180	185	158	170	158	141	150

PEND OREILLE RIVER BASIN

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12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
			JUNE			JULY			AUGUST			SEPTEMBER
1	---	---	---	155	155	155	165	159	161	170	169	169
2	---	---	---	155	154	154	161	159	160	170	168	169
3	---	---	---	155	153	154	161	159	160	169	167	168
4	---	---	---	155	154	154	160	159	160	169	167	168
5	---	---	---	156	154	155	160	158	159	168	166	167
6	---	---	---	156	154	155	159	158	159	167	167	167
7	---	---	---	156	155	156	160	158	159	168	166	167
8	---	---	---	156	154	155	162	159	161	167	165	167
9	---	---	---	155	154	155	163	159	161	167	166	167
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	154	153	154	163	161	162	167	165	166
12	---	---	---	154	153	153	164	161	163	167	165	166
13	---	---	---	155	153	154	165	162	163	167	166	167
14	---	---	---	157	154	156	164	163	164	169	167	168
15	---	---	---	158	155	157	165	162	164	171	168	169
16	---	---	---	159	156	158	165	162	163	171	170	171
17	---	---	---	159	157	158	165	162	164	171	170	171
18	---	---	---	160	156	159	165	162	164	172	171	172
19	---	---	---	159	157	158	165	162	164	172	171	172
20	---	---	---	159	156	158	167	164	165	173	171	172
21	---	---	---	159	157	158	167	164	166	173	171	172
22	---	---	---	159	157	158	167	164	166	173	171	172
23	---	---	---	160	157	159	167	165	166	174	171	172
24	---	---	---	160	156	159	167	165	166	174	171	172
25	---	---	---	161	159	160	---	---	---	---	---	---
26	---	---	---	162	159	160	---	---	---	174	172	173
27	---	---	---	162	159	161	176	172	174	174	172	173
28	156	155	156	162	160	161	174	171	172	175	172	173
29	158	155	156	162	160	161	173	170	172	174	172	173
30	156	154	156	162	160	161	172	171	171	174	172	173
31	---	---	---	165	160	162	171	169	170	---	---	---
MONTH	158	154	156	165	153	157	176	158	164	175	165	170
YEAR	190	141	170									

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
			OCTOBER			NOVEMBER			DECEMBER			JANUARY
1	---	---	---	10.0	9.5	10.0	2.0	1.5	2.0	.0	.0	.0
2	---	---	---	9.5	9.5	9.5	2.5	2.0	2.0	.0	.0	.0
3	---	---	---	9.5	9.0	9.0	3.0	2.5	2.5	.0	.0	.0
4	---	---	---	9.0	9.0	9.0	3.0	3.0	3.0	.0	.0	.0
5	---	---	---	9.0	9.0	9.0	3.0	3.0	3.0	.0	.0	.0
6	---	---	---	9.0	8.5	8.5	3.0	3.0	3.0	.0	.0	.0
7	---	---	---	9.0	8.5	8.5	3.0	2.5	2.5	.0	.0	.0
8	---	---	---	8.5	8.5	8.5	2.5	2.0	2.5	.0	.0	.0
9	---	---	---	8.5	8.5	8.5	2.0	1.5	2.0	.0	.0	.0
10	---	---	---	8.5	8.0	8.5	1.5	1.5	1.5	.0	.0	.0
11	---	---	---	8.0	7.5	8.0	1.5	1.5	1.5	.0	.0	.0
12	---	---	---	7.5	7.0	7.0	1.5	1.0	1.0	.0	.0	.0
13	---	---	---	7.0	6.5	6.5	1.0	1.0	1.0	.0	.0	.0
14	---	---	---	6.5	5.5	6.0	1.0	1.0	1.0	.0	.0	.0
15	---	---	---	5.5	5.0	5.5	1.0	1.0	1.0	.0	.0	.0
16	---	---	---	5.0	4.0	4.5	1.0	.5	1.0	.0	.0	.0
17	---	---	---	4.0	3.5	4.0	.5	.5	.5	.0	.0	.0
18	---	---	---	3.5	3.0	3.0	.5	.5	.5	.0	.0	.0
19	---	---	---	3.5	3.0	3.5	.5	.5	.5	.0	.0	.0
20	---	---	---	4.0	4.0	4.0	.5	.5	.5	.0	.0	.0
21	---	---	---	4.0	4.0	4.0	.5	.5	.5	.0	.0	.0
22	---	---	---	4.5	4.0	4.5	1.0	.5	.5	.0	.0	.0
23	---	---	---	4.0	4.0	4.0	1.0	1.0	1.0	.0	.0	.0
24	---	---	---	4.0	3.5	4.0	1.0	1.0	1.0	.0	.0	.0
25	---	---	---	4.0	3.5	3.5	1.0	1.0	1.0	.0	.0	.0
26	---	---	---	3.5	3.0	3.0	1.0	1.0	1.0	.0	.0	.0
27	---	---	---	3.0	2.5	2.5	1.0	.5	1.0	.0	.0	.0
28	---	---	---	2.5	1.5	2.0	.5	.5	.5	.0	.0	.0
29	---	---	---	1.5	1.5	1.5	.5	.0	.5	.0	.0	.0
30	---	---	---	1.5	1.5	1.5	.0	.0	.0	.0	.0	.0
31	10.0	10.0	10.0	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	10.0	10.0	10.0	10.0	1.5	5.5	3.0	.0	1.5	.0	.0	.0

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	.0	.0	.0	1.5	1.0	1.0	5.5	5.0	5.0	10.5	10.0	10.0
2	.0	.0	.0	1.5	1.0	1.5	5.0	4.5	5.0	11.0	10.5	10.5
3	.0	.0	.0	1.5	1.5	1.5	5.0	4.5	5.0	11.0	10.5	11.0
4	.0	.0	.0	1.5	1.5	1.5	5.0	5.0	5.0	11.0	11.0	11.0
5	.0	.0	.0	---	---	---	5.0	4.5	5.0	11.0	11.0	11.0
6	.0	.0	.0	---	---	---	4.5	4.5	4.5	11.0	10.5	11.0
7	.0	.0	.0	---	---	---	5.0	4.5	4.5	11.0	10.5	10.5
8	.0	.0	.0	---	---	---	5.0	4.5	5.0	10.5	10.0	10.5
9	.0	.0	.0	---	---	---	5.0	5.0	5.0	10.0	10.0	10.0
10	.0	.0	.0	---	---	---	5.5	5.0	5.5	10.0	10.0	10.0
11	.0	.0	.0	---	---	---	6.0	5.5	5.5	10.0	10.0	10.0
12	.0	.0	.0	---	---	---	6.5	6.0	6.0	10.0	10.0	10.0
13	.0	.0	.0	---	---	---	6.5	6.5	6.5	10.5	10.0	10.5
14	.0	.0	.0	---	---	---	6.5	6.5	6.5	10.5	10.5	10.5
15	.0	.0	.0	---	---	---	6.5	6.5	6.5	11.0	10.5	11.0
16	.0	.0	.0	---	---	---	6.5	6.5	6.5	11.5	11.0	11.5
17	.0	.0	.0	---	---	---	6.5	6.5	6.5	11.5	11.5	11.5
18	.0	.0	.0	---	---	---	6.5	6.5	6.5	12.0	11.5	12.0
19	.0	.0	.0	---	---	---	6.5	6.0	6.5	12.0	12.0	12.0
20	.0	.0	.0	---	---	---	6.5	6.0	6.5	12.0	12.0	12.0
21	.5	.0	.0	---	---	---	6.5	6.5	6.5	12.0	12.0	12.0
22	.5	.0	.5	---	---	---	7.0	6.5	7.0	12.5	12.0	12.0
23	.5	.5	.5	---	---	---	7.0	7.0	7.0	12.5	12.5	12.5
24	1.0	.5	1.0	---	---	---	7.5	7.0	7.0	13.0	12.5	13.0
25	1.0	1.0	1.0	---	---	---	7.5	7.0	7.5	---	---	---
26	1.0	1.0	1.0	---	---	---	7.5	7.0	7.5	---	---	---
27	1.0	1.0	1.0	---	---	---	8.0	7.5	8.0	---	---	---
28	1.0	1.0	1.0	5.5	5.5	5.5	8.5	8.0	8.5	---	---	---
29	---	---	---	5.5	5.5	5.5	9.0	8.5	9.0	---	---	---
30	---	---	---	5.5	5.5	5.5	10.0	9.0	9.5	---	---	---
31	---	---	---	5.5	5.5	5.5	---	---	---	---	---	---
MONTH	1.0	.0	.0	5.5	1.0	3.5	10.0	4.5	6.5	13.0	10.0	11.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	10.5	10.5	10.5	22.5	22.0	22.5	22.0	21.5	21.5
2	---	---	---	10.5	10.0	10.5	22.5	22.5	22.5	21.5	21.5	21.5
3	---	---	---	10.0	17.5	17.5	22.5	22.5	22.5	21.5	21.5	21.5
4	---	---	---	17.5	17.0	17.0	23.0	22.5	22.5	21.5	21.0	21.0
5	---	---	---	10.0	17.0	17.5	22.5	22.5	22.5	21.0	21.0	21.0
6	---	---	---	10.5	10.0	10.5	22.5	22.5	22.5	20.5	20.0	20.5
7	---	---	---	19.0	10.5	19.0	22.5	22.0	22.5	20.5	20.0	20.0
8	---	---	---	10.5	10.5	10.5	22.5	22.0	22.0	20.0	20.0	20.0
9	---	---	---	19.0	10.5	19.0	22.5	22.0	22.0	20.0	19.5	19.5
10	---	---	---	19.5	19.0	19.0	22.5	22.0	22.0	19.5	19.5	19.5
11	---	---	---	19.5	19.5	19.5	22.5	22.0	22.0	19.5	19.5	19.5
12	---	---	---	19.5	19.5	19.5	22.5	22.0	22.0	19.5	19.0	19.5
13	---	---	---	19.5	19.0	19.5	22.5	22.0	22.0	19.5	19.0	19.0
14	---	---	---	19.5	19.0	19.5	22.0	22.0	22.0	19.0	18.5	19.0
15	---	---	---	19.5	19.0	19.5	22.0	22.0	22.0	19.0	18.5	18.5
16	---	---	---	20.0	19.5	19.5	22.5	22.0	22.0	19.0	18.5	18.5
17	---	---	---	20.0	19.5	20.0	22.5	22.0	22.0	19.0	18.5	19.0
18	---	---	---	20.5	20.0	20.0	22.0	22.0	22.0	19.0	18.5	19.0
19	---	---	---	21.0	20.5	21.0	22.0	22.0	22.0	19.0	18.5	19.0
20	---	---	---	21.5	21.0	21.0	22.0	22.0	22.0	19.0	18.5	19.0
21	---	---	---	21.5	21.0	21.5	22.0	22.0	22.0	19.0	18.5	19.0
22	---	---	---	22.0	21.5	21.5	22.0	22.0	22.0	18.5	18.5	18.5
23	---	---	---	22.0	21.5	21.5	22.0	22.0	22.0	18.5	18.5	18.5
24	---	---	---	22.0	22.0	22.0	22.5	22.0	22.5	18.5	18.5	18.5
25	---	---	---	22.5	22.0	22.0	---	---	---	18.5	18.5	18.5
26	---	---	---	22.5	22.0	22.0	---	---	---	18.5	18.5	18.5
27	---	---	---	22.5	22.0	22.0	22.5	22.0	22.0	18.5	18.0	18.5
28	17.5	17.5	17.5	22.5	22.0	22.0	22.0	21.5	22.0	18.0	18.0	18.0
29	18.5	17.5	18.0	22.5	22.0	22.0	22.0	21.5	22.0	18.0	18.0	18.0
30	18.5	18.5	18.5	22.5	22.0	22.5	22.0	21.5	22.0	18.0	17.5	17.5
31	---	---	---	22.5	22.0	22.0	---	---	---	---	---	---
MONTH	18.5	17.5	18.0	22.5	17.0	20.0	23.0	21.5	22.0	22.0	17.5	19.5
YEAR	23.0	.0	9.5									

PEND OREILLE RIVER BASIN

43

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

PHYTOPLANKTON ANALYSES: OCTOBER 1978 TO SEPTEMBER 1979

DATE TIME	NOV 29.78 1645	MAR 28.79 1300	MAY 24.79 1350	JUN 28.79 1005				
TOTAL CELLS/ML	390	5600	550	3000				
DIVERSITY: DIVISION	8.7	0.6	1.0	1.1				
..CLASS	0.7	0.6	1.0	1.1				
...ORDER	1.4	1.3	1.2	1.2				
...FAMILY	1.8	1.4	1.5	1.3				
...GENUS	1.9	1.6	1.5	1.4				
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
...CHLOROCOCCALES								
...CHARACIACEAE								
...SCHROEDERIA								
...ODCYSTACEAE								
...ANKISTRODESCHUS			690 12	210# 37	*	0		
...CHLORELLA								
...ODCYSTIS	29 7							
...SELENASTRUM	14 4							
...SCENEDESMACEAE								
...SCENEDESMUS	29 7					150 4		
..TETRASPORALES								
...COCOCHYXACEAE								
...ELAKATOTHRIX								
CHRYSTOPHYTA								
..BACILLARIOPHYCEAE								
...CENTRALES								
...COSCINODISCEACEAE								
...CYCLOTELLA	230# 59	3500# 63				370 10		
...MELOSIRA		220 4						
...STEPHANODISCUS				26 5		190 5		
...RHIZOSOLENACEAE								
...RHIZOSOLENIA						*	0	
..PENNALES								
...ACHNANTHACEAE								
...ACHNANTHES								
...COCconeis		43 1						
...CYNHELLACEAE								
...CYNHELLA								
...FRAGILARIACEAE								
...ASTERIONELLA		990# 18	200# 51			51 1		
...FRAGILARIA								
...SYNEDRA	43 11					39 1		
...NAVICULACEAE								
...NAVICULA	43 11							
...NITZSCHACEAE								
...NITZSCHIA		43 1	39 7			39 1		
...TABELLARIACEAE								
...TABELLARIA								
CHRYPTOPHYTA (CRYPTOMONADS)								
..CHRYPTOPHYCEAE								
...CRYPTOMONADALES								
...CRYPTOMONADACEAE								
...CRYPTOMONAS						*	0	
CYANOPHYTA (BLUE-GREEN ALGAE)								
..CYANOPHYCEAE								
...HORMOGONIALES								
...OSCILLATORIACEAE								
...OSCILLATORIA						2000# 75		
EUGLENOPHYTA (EUGLENOIDS)								
..EUGLENOPHYCEAE								
...EUGLENALES								
...EUGLENACEAE								
...EUGLENA								
...TRACHELOMONAS		80 2						
RYNOROPHYTA (FIRE ALGAE)								
..DINOPHYCEAE								
...PERIDINIALES								
...GLENODINIACEAE								
...GLENODINIUM						39 1		

NOTE: * = DOMINANT ORGANISMS EQUAL TO OR GREATER THAN 15%

= OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PEND OREILLE RIVER BASIN

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE TIME	JUL 24,79 1415	AUG 29,79 1500	SEP 25,79 1530	
TOTAL CELLS/ML	20000	7	310	
DIVERSITY: DIVISION	0.1	1.2	0.7	
..CLASS	0.1	1.2	0.7	
...ORDER	0.1	1.9	1.7	
...FAMILY	0.2	2.3	2.0	
...GENUS	0.2	2.6	2.3	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)				
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...CHARACIACEAE				
...SCHROEDERIA	* 0	--	--	--
...OOCYSTACEAE				
...ANKISTRODESUS	* 0	0 2	13 4	
...CHLORELLA	--	0 1	--	--
...OOCYSTIS	--	0 4	--	--
...SELENASTRUM	--	--	--	--
...SCENEDESMACEAE				
...SCENEDESMUS	--	0 2	26 8	
...TETRASPOALES				
...COCCONYXACEAE				
...ELAKATOTMIA	--	1 10	26 8	
CHRYTOSPHYTA				
..BACILLARIOPHYCEAE				
...CENTRALES				
...COSCINOIDISCEAE				
...CYCLOTILLA	* 0	30 46	1400 46	
...HELOSIRA	100 1	0 6	26 8	
...STEPHANODISCUS	--	--	--	--
...RHIZOSOLENIA				
...RHIZOSOLENIA	--	--	--	--
...PENNALES				
...ACHNANTHACEAE	--	0 1	--	--
...ACHNANTHES	--	--	--	--
...COCCONEIS				
...CYMBELLACEAE	--	0 1	--	--
...CYMBELLA				
...FRAGILARIACEAE				
...ASTERIONOMELLA	* 0	--	510 17	
...FRAGILARIA	* 0	--	--	--
...SYNEDRA	--	--	--	--
...NAVICULACEAE				
...NAVICULA	--	0 5	26 8	
...NITZSCHACEAE				
...NITZSCHIA	* 0	0 6	--	--
...TABELLARIACEAE	--	0 2	--	--
...TABELLARIA				
CRYPTOPHYTA (CRYPTOMONADS)				
..CRYPTOPHYCEAE				
...CRYPTOMONADALES				
...CRYPTOMONADACEAE				
...CRYPTOMONAS	--	--	--	--
CYANOPHYTA (BLUE-GREEN ALGAE)				
..CYANOPHYCEAE				
...HORMOGONALES				
...OSCILLATORIA	20000# 90	1 15	--	--
EUGLENOPHYTA (EUGLENOIDS)				
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE				
...EUGLENA	* 0	--	--	--
...TRACHELOMONAS	--	--	--	--
PYRROPHYTA (FIRE ALGAE)				
..PYRROPHYCEAE				
...PERIDINIALES				
...ELENODINIACEAE				
...ELENODINIUM	--	--	--	--

NOTE: * - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
 * - OBSERVED ORGANISM; MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

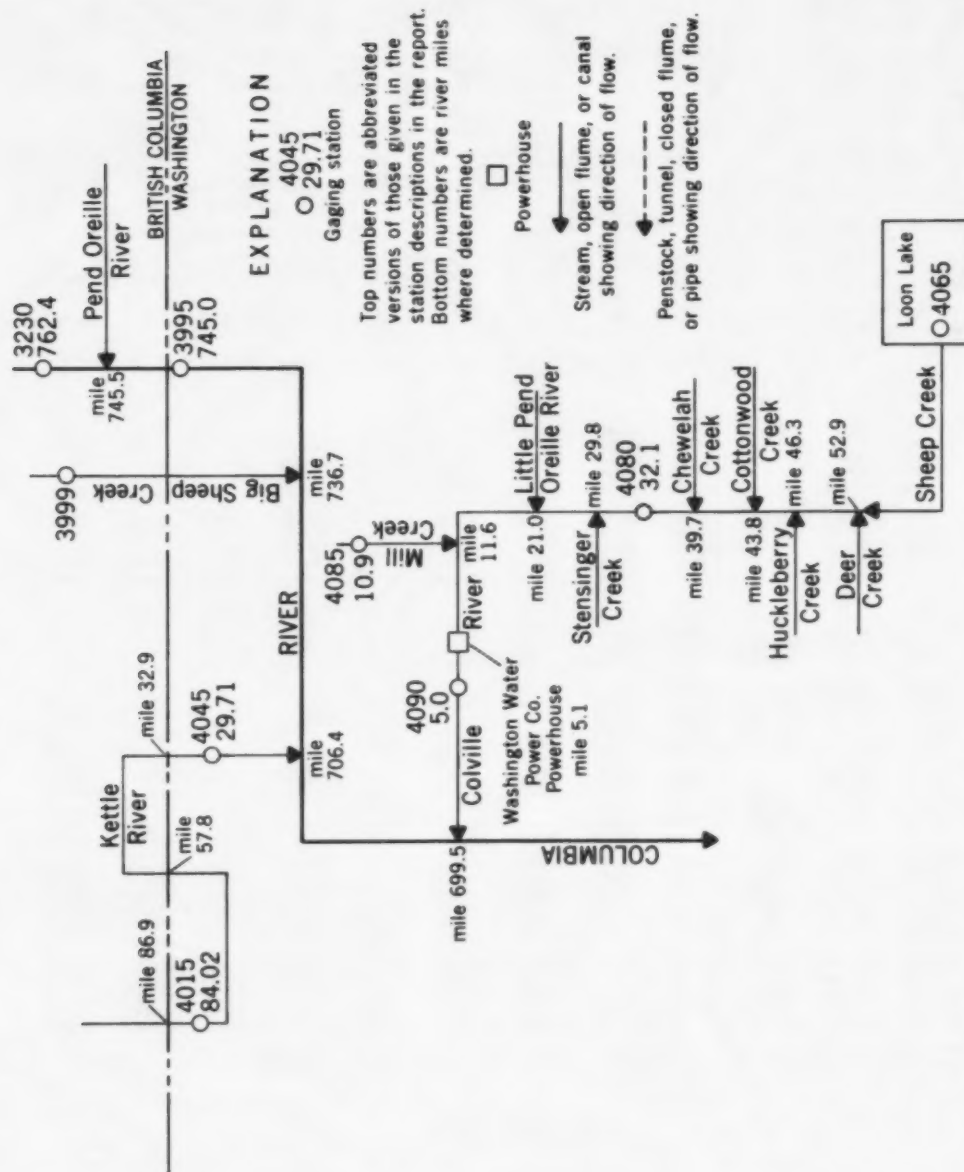


Figure 7. Gaging stations in Columbia River basin from International Boundary to Colville River.

COLUMBIA RIVER MAIN STEM

12599500 COLUMBIA RIVER AT INTERNATIONAL BOUNDARY
(International gaging station)

LOCATION.--Lat 49°00'03", long 117°37'42", in NE4SE4 sec. 4, T.40 N., R.41 E., Stevens County, Hydrologic Unit 17020001, on left bank at international boundary, 6.5 mi (0.8 km) downstream from Pend Oreille River, and at mile 745.0 (1,198.7 km).

DRAINAGE AREA.--59,700 mi² (154,600 km²), approximately.

PERIOD OF RECORD.--October 1937 to current year. Prior to March 1958 monthly discharge only, published in WSP 1316.

REVISED RECORDS.--WSP 932: 1937(m), 1938(M), 1959(m).

GAGE.--Water-stage recorder. Datum of gage is 0.00 ft (0.000 m) Bureau of Reclamation 1937 datum. Prior to Apr. 27, 1939, nonrecording gage at same site and datum. Since May 31, 1942, auxiliary water-stage recorder and Jan. 1 to May 30, 1942, auxiliary nonrecording gage 2.2 mi (3.5 km) downstream from base gage at same datum.

REMARKS.--Records excellent except those for June 10 to Sept. 30, which are good. Flow regulated by eight major reservoirs and numerous smaller reservoirs and powerplants. It was estimated that 346,700 acres (1,400 km²) were under irrigation in the United States in 1946 with diversions for irrigation of an additional 35,000 acres (142 km²) in Canada.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--42 years, 100,300 ft³/s (2,840 m³/s), 72,670,000 acre-ft/yr (89,600 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 550,100 ft³/s (15,600 m³/s) June 12, 1948, elevation, 1,338.13 ft (407.82 m); minimum, 18,000 ft³/s (510 m³/s) Feb. 7, 1954, elevation, 1,289.58 ft (393.003 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1894 reached a stage of 1,340 ft (410.3 m), from information by Bureau of Reclamation, discharge, 880,000 ft³/s (29,300 m³/s).

A discharge of about 12,900 ft³/s (365 m³/s) occurred Jan. 30 or 31, 1937, based on information from other gaging stations, elevation, 1,287.9 ft (392.55 m), from rating curve extended below 1,291.6 ft (393.68 m) and may have been as low sometime in January 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 163,000 ft³/s (4,620 m³/s) May 30, elevation, 1,309.94 ft (399.270 m); minimum, 35,400 ft³/s (1,000 m³/s) Apr. 20, elevation, 1,293.15 ft (394.152 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	107000	92900	83500	113000	104000	47200	62100	95300	146000	88200	95100	85300
2	107000	97100	75300	117000	108000	46400	52900	102000	144000	83500	99700	83400
3	106000	96500	78700	119000	108000	46100	48200	105000	139000	82900	103000	79700
4	98300	97900	103000	112000	98300	44500	49300	120000	129000	82900	99100	80500
5	89400	99000	98000	112000	91700	49400	49400	132000	127000	77900	104000	82400
6	89200	100000	104000	107000	84900	50100	51300	129000	127000	77000	104000	84100
7	73500	93900	102000	113000	76600	56500	53500	115000	122000	77400	105000	83100
8	69900	93800	105000	124000	80000	53300	54400	110000	118000	84400	104000	85700
9	69400	97000	105000	135000	82000	52400	58800	114000	115000	91400	102000	77900
10	68900	101000	103000	134000	82300	54400	57000	114000	112000	90900	105000	74400
11	74700	101000	95100	130000	78300	57200	57500	113000	102000	91100	104000	75300
12	82000	96700	99000	135000	75900	56600	59000	116000	96400	94900	94300	77100
13	88400	87900	95700	132000	78000	56500	67200	115000	88200	94100	102000	75800
14	94600	88700	100000	131000	74400	60200	63900	115000	93500	92700	101000	75700
15	105000	98100	101000	135000	71400	61700	72500	117000	96000	94100	101000	75200
16	104000	88900	98100	135000	75100	60600	81000	121000	99500	91600	100000	70300
17	102000	85900	92300	135000	75300	60800	75600	121000	102000	93700	98000	72100
18	95700	78300	94400	135000	77100	62500	70000	124000	106000	94200	99400	69200
19	95100	84500	99300	133000	75600	64500	55900	123000	99900	95700	99500	69700
20	96200	90400	95300	132000	74000	64000	47100	124000	93400	97100	93400	69100
21	96000	92400	95700	118000	68500	67900	42800	121000	92100	95000	91600	66200
22	95100	85500	92100	109000	67600	69600	50000	124000	90300	94000	93400	67100
23	92900	80700	98700	102000	65800	69000	56000	124000	93000	99400	97800	63400
24	99800	75400	99400	102000	61400	78400	68700	132000	106000	97800	106000	60900
25	102000	75300	107000	102000	55300	78400	70600	136000	113000	101000	88700	54300
26	102000	72000	108000	100000	48200	75400	74300	141000	117000	110000	79100	59600
27	102000	68900	108000	95300	45800	84200	84500	148000	109000	109000	78200	59200
28	107000	72900	101000	95300	48100	71500	85700	152000	109000	105000	77800	58600
29	109000	79100	98500	99200	---	67700	89800	141000	103000	100000	74000	58500
30	102000	98100	98900	104000	---	67700	91900	154000	93500	100000	84800	65600
31	92600	---	43200	103000	---	63000	---	195000	---	100000	88100	---
TOTAL	2908700	2633300	3026200	3648000	2133400	1843700	1903900	3870300	3274200	2867500	2986000	2164800
MEAN	93830	87760	97620	117700	76190	60760	63450	124400	104100	92500	94320	72160
MAX	109000	101000	108000	135000	108000	78800	91900	159000	148000	110000	104000	85700
MIN	68900	68900	75300	95300	45800	44500	42800	95300	88400	77000	77400	58500
AC-FT	5769000	5223000	6092000	7237000	4232000	3736000	3776000	7677000	6490000	5080000	5921000	4294000
CAL YR 1978 TOTAL	34479000	MEAN	94440	MAX	150000	MIN	49300	AC-FT	68300000			
WTR YR 1979 TOTAL	33298400	MEAN	91230	MAX	150000	MIN	42800	AC-FT	58050000			

COLUMBIA RIVER MAIN STEM

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12400520 COLUMBIA RIVER AT NORTHPORT, WA
(National stream-quality accounting network station)

LOCATION.--Lat 46°55'21", Long 117°46'32", in SW¼SW¼ sec.33, T.40 N., R.40 E., Stevens County, Hydrologic Unit 17020001, at State Highway 25 bridge at Northport, 9.9 mi (15.9 km) downstream from gaging station at international boundary, and at mile 735.1 (1,182.8 km).

DRAINAGE AREA.--60,200 mi² (155,900 km²), approximately.

PERIOD OF RECORD.--Water years 1910-11, 1952 to current year. Prior to November 1951 published as "at Northport". November 1951 to September 1957 published as 12399500 "at international boundary", October 1957 to September 1963 as "at Northport". October 1963 to September 1973 as "at international boundary".

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1951 to September 1975, April 1976 to current year.

pH: November 1951 to September 1969.

WATER TEMPERATURES: November 1951 to current year.

SUSPENDED SEDIMENT DISCHARGE: February 1910 to January 1911.

INSTRUMENTATION.--Temperature recorder since October 1974; specific conductance recorder since April 1976.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. In addition to the water-quality monitor record, samples were collected approximately once a month.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 285 micromhos Apr. 2, 1972; minimum, 96 micromhos Aug. 7, 1976, Sept. 5, 1978.

WATER TEMPERATURES: Maximum, 21.0°C May 14, 19, 1959; minimum, 0.0°C on several days during January in 1960, 1962 and 1963.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 173 micromhos Apr. 22; minimum recorded, 117 micromhos Aug. 18.

WATER TEMPERATURES: Maximum recorded, 20°C July 24, Aug. 4-5; minimum recorded, 1.0°C Jan. 26-29.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW (CFS)	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	pH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN- DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CaCO3)
OCT - 1979											
30...	1600	--	184000	146	7.0	10.4	.20	12.1	14	3	67
NOV											
30...	1415	--	72100	158	7.0	4.6	.90	11.3	2	2	70
DEC											
27...	1330	--	105000	157	7.2	3.2	.30	14.5	27	12	69
JAN - 1979											
25...	1400	--	191000	140	8.0	1.4	.40	14.5	14	9	68
FEB											
26...	0830	--	43500	161	7.4	1.4	.75	13.2	3	4	83
MAR											
29...	1200	--	60100	166	8.0	3.6	1.4	12.7	10	1	70
APR											
24...	1000	--	60100	159	7.9	5.0	1.0	12.0	1	<1	77
MAY											
22...	1500	--	125000	143	8.1	11.6	2.0	12.3	1	<1	74
JUN											
26...	1140	117000	--	138	8.0	15.2	2.2	11.0	5	<1	76
JUL											
25...	1000	101000	--	117	--	19.0	1.1	9.7	33	870	59
AUG											
28...	0830	77400	--	126	7.6	17.6	.60	9.8	9	1100	69
SEP											
26...	1230	59600	--	136	7.6	16.7	.70	8.9	93	290	64

DATE	HARD- NESS (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM- DIS- SOLVED (MG/L AS Mg)	SODIUM DIS- SOLVED (MG/L AS Na)	SODIUM PERCENT	POTAS- SIUM- DIS- SOLVED (MG/L AS K)	ALKAL- LITY (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE- DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE- DIS- SOLVED (MG/L AS F)
OCT - 1979										
30...	28	20	4.2	1.7	5	.1	.7	39	12	.9
NOV										
30...	15	23	4.9	2.1	5	.1	1.1	63	10	1.5
DEC										
27...	11	20	4.6	1.4	4	.1	.7	58	10	.8
JAN - 1979										
25...	11	20	4.4	1.4	4	.1	.5	57	13	.7
FEB										
26...	27	25	5.0	1.8	4	.1	.6	56	21	.9
MAR										
29...	14	23	5.0	2.0	5	.1	.7	64	14	.8
APR										
24...	15	23	4.7	1.4	4	.1	.7	62	16	.9
MAY										
22...	22	21	5.3	2.0	5	.1	1.0	52	14	1.0
JUN										
26...	24	22	4.7	1.7	5	.1	.7	50	13	.9
JUL										
25...	12	14	3.5	1.2	5	.1	.6	47	16	.6
AUG										
28...	8	15	2.9	1.2	5	.1	1.3	41	14	.6
SEP										
26...	18	14	4.1	1.7	5	.1	1.1	46	14	1.1

K Results based upon colony counts outside the ideal range.

COLUMBIA RIVER MAIN STEM

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

WATER QUALITY DATA

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 100 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORG. SUSP. TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORG. SUSP. TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORG. SUSP. TOTAL (MG/L AS N)
OCT - 1978											
30...	4.5	75	68	.10	21100	.05	.06	.94	1.0	.36	.64
NOV											
30...	5.0	91	86	.12	17700	.07	.04	.17	.21	.02	.19
DEC											
27...	4.5	81	77	.11	23000	.12	.01	.22	.23	.00	.37
JAN - 1979											
25...	4.4	84	79	.11	22000	.12	.05	.13	.18	.11	.07
FEB											
28...	4.9	91	93	.12	10700	.12	.08	.10	.10	.05	.13
MAR											
29...	5.4	91	98	.12	14000	.15	.03	.47	.50	.40	.10
APR											
24...	4.8	85	89	.12	13000	.10	.06	.04	.10	.02	.08
MAY											
22...	5.7	71	81	.10	24000	.05	.11	.09	.20	.09	.11
JUN											
26...	4.6	78	78	.11	24000	.04	.02	.12	.14	.08	.06
JUL											
25...	4.5	81	74	.11	22100	.10	.06	.14	.20	.00	.21
AUG											
28...	2.8	71	63	.10	14900	.12	.02	--	--	.00	.21
SEP											
26...	3.5	78	73	.11	12600	.08	.08	.44	.52	.18	.34

DATE	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDE TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. & FINE THAN .062 MM
OCT - 1978										
30...	1.1	4.6	.040	.030	--	1.5	.3	3	842	78
NOV										
30...	.28	1.2	.040	.030	1.2	--	--	--	--	15
DEC										
27...	.35	1.6	.040	.020	1.3	--	--	2	567	100
JAN - 1979										
25...	.38	1.3	.020	.020	--	2.5	.3	--	--	--
FEB										
28...	.30	1.3	.070	.040	1.6	--	--	3	352	93
MAR										
29...	.05	2.4	.040	.100	1.4	--	--	5	811	86
APR										
24...	.20	.69	.060	.020	--	1.0	.5	6	974	80
MAY										
22...	.25	1.1	.020	.010	2.4	--	--	7	2360	51
JUN										
26...	.18	.80	.030	.030	2.9	--	--	8	2530	73
JUL										
25...	.30	1.3	.030	.050	--	2.4	.3	5	1360	74
AUG										
28...	--	--	.030	.020	1.1	--	--	4	840	96
SEP										
26...	.60	2.7	.020	.030	1.9	--	--	4	644	92

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDE RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM, TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM, SUS- PENDE RECOV- ERABLE (UG/L AS CD)	CADMIUM, DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT - 1978										
30...	1600	1	1	0	0	0	2	1	1	0
JAN - 1979										
25...	1400	1	1	0	0	30	2	1	<1	10
APR										
24...	1000	3	2	0	0	40	1	0	<1	0
JUL										
25...	1000	3	1	0	0	40	0	0	1	0

COLUMBIA RIVER MAIN STEM

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WATER QUALITY DATA

DATE	CHROMIUM, SUS- PENDE REC'D (UG/L AS CR)	CHROMIUM, DIS- SOLVED (UG/L AS CR)	COPPER, TOTAL REC'D ERABLE (UG/L AS CO)	COPPER, SUS- PENDE REC'D ERABLE (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL REC'D ERABLE (UG/L AS CU)	COPPER, SUS- PENDE REC'D ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL REC'D ERABLE (UG/L AS FE)	IRON, SUS- PENDE REC'D ERABLE (UG/L AS FE)
OCT. 1978										
30...	0	0	1	1	0	83	82	1	340	340
JAN. 1979										
25...	10	0	2	0	<3	23	21	2	580	580
APR										
24...	0	10	0	0	<3	9	5	4	260	250
JUL										
25...	0	0	0	0	<3	3	1	2	160	0

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL REC'D ERABLE (UG/L AS PB)	LEAD, SUS- PENDE REC'D ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGANESE, TOTAL REC'D ERABLE (UG/L AS MN)	MANGANESE, SUS- PENDE REC'D ERABLE (UG/L AS MN)	MANGANESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL REC'D ERABLE (UG/L AS HG)	MERCURY SUS- PENDE REC'D ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)
OCT. 1978										
30...	0	50	50	0	10	0	10	.0	.0	.0
JAN. 1979										
25...	<0	25	19	6	20	20	4	.0	.0	.0
APR										
24...	10	19	19	0	20	10	9	.2	.2	.0
JUL										
25...	400	12	0	4	10	0	10	.1	.0	.1

DATE	SELENIUM, TOTAL REC'D ERABLE (UG/L AS SE)	SELENIUM, SUS- PENDE REC'D ERABLE (UG/L AS SE)	SILVER, TOTAL REC'D ERABLE (UG/L AS AG)	SILVER, SUS- PENDE REC'D ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL REC'D ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE REC'D ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT. 1978								
30...	0	0	0	2	2	0	50	20
JAN. 1979								
25...	0	0	0	1	1	0	100	80
APR								
24...	0	0	0	0	0	0	80	10
JUL								
25...	0	0	0	0	0	0	50	20

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	129	127	128	149	142	147	159	152	157	153	149	152
2	130	124	128	149	143	146	161	154	159	152	141	148
3	130	125	128	145	140	144	160	155	157	155	145	151
4	137	130	135	147	143	146	153	147	150	153	149	150
5	137	133	135	148	144	146	152	142	147	152	146	149
6	134	130	133	146	144	145	152	144	148	153	148	151
7	142	132	139	146	140	143	154	147	151	155	149	151
8	142	141	142	151	142	146	154	147	150	154	147	150
9	144	142	143	152	140	150	153	149	151	152	147	149
10	146	133	141	150	143	147	153	149	151	---	---	---
11	144	135	142	149	142	146	152	146	150	---	---	---
12	143	134	141	152	143	147	147	142	144	---	---	---
13	139	131	133	155	150	152	152	144	147	---	---	---
14	134	131	133	154	147	152	152	147	150	---	---	---
15	133	131	132	157	149	154	152	143	148	---	---	---
16	133	127	131	157	154	156	151	146	148	---	---	---
17	134	128	131	159	147	154	152	147	149	---	---	---
18	133	128	132	157	153	156	152	144	150	---	---	---
19	134	128	132	157	152	154	154	146	150	---	---	---
20	133	127	132	155	152	153	158	149	155	---	---	---
21	133	131	133	155	144	148	161	154	158	---	---	---
22	133	131	132	153	145	150	159	158	155	---	---	---
23	134	132	133	155	147	152	161	157	159	---	---	---
24	134	127	130	154	145	149	160	153	157	---	---	---
25	136	132	134	157	144	151	154	151	153	---	---	---
26	137	134	135	150	148	150	154	151	153	---	---	---
27	138	131	135	161	153	158	154	147	150	---	---	---
28	139	136	136	156	148	152	160	153	157	---	---	---
29	140	137	138	159	152	157	158	152	155	---	---	---
30	144	139	142	162	155	159	158	153	156	---	---	---
31	144	139	141	---	---	---	157	146	153	---	---	---
MONTH	146	124	135	162	140	151	161	142	152	155	141	150

COLUMBIA RIVER MAIN STEM

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1							---	---	---	140	129	134
2							---	---	---	136	130	134
3							---	---	---	137	131	135
4							164	163	163	137	132	134
5							165	150	160	134	130	133
6							161	156	159	134	129	132
7							162	157	160	139	134	136
8							159	151	156	141	135	138
9							152	145	149	143	137	141
10							150	144	146	145	141	143
11							156	144	152	146	139	142
12							160	151	157	149	143	147
13							156	148	153	150	146	148
14							156	152	155	150	147	148
15							155	151	153	148	140	145
16							152	149	150	143	139	142
17							150	139	145	143	139	141
18							149	140	146	144	139	142
19							155	147	152	146	142	144
20							163	151	159	147	145	146
21							166	150	161	148	144	147
22							173	157	167	146	142	144
23							158	154	156	145	142	144
24							153	134	144	144	137	140
25							146	136	142	139	134	137
26							146	144	145	138	136	137
27							147	135	143	136	132	135
28							145	140	143	140	134	138
29							144	140	142	139	131	135
30							142	136	140	142	137	140
31							---	---	---	144	140	142
MONTH							173	134	152	150	129	140

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	142	137	140	140	135	137	131	122	126	135	125	130
2	141	137	139	141	135	139	134	123	129	136	131	133
3	140	137	139	136	135	136	133	125	131	135	130	133
4	139	134	137	138	132	135	131	126	129	134	126	130
5	139	133	136	138	135	137	131	126	128	134	126	131
6	139	136	138	137	135	136	131	126	128	135	130	133
7	140	138	139	137	135	136	127	123	125	134	128	132
8	141	136	140	137	132	135	129	122	126	137	130	133
9	143	139	141	133	132	132	127	126	126	136	126	132
10	143	139	142	133	130	132	132	124	126	138	133	136
11	144	141	142	137	132	135	131	123	127	136	129	134
12	144	133	139	139	135	137	127	124	126	137	133	136
13	138	135	137	138	131	135	130	124	126	137	129	136
14	139	137	138	149	132	136	126	119	123	138	130	135
15	141	137	139	136	133	134	127	120	124	138	134	136
16	143	140	142	134	130	132	127	122	125	140	135	137
17	145	142	144	136	132	134	127	120	124	141	136	139
18	144	139	141	138	133	136	123	117	121	139	131	136
19	140	136	138	137	129	134	129	121	125	141	131	136
20	137	136	137	137	131	134	131	125	128	138	134	137
21	136	135	136	139	140	135	129	124	127	140	129	136
22	138	133	136	134	128	132	132	122	127	140	130	136
23	146	137	142	135	131	133	135	138	132	142	134	138
24	146	143	144	133	126	130	135	126	138	146	142	144
25	145	142	143	131	125	129	136	121	128	143	132	139
26	142	137	139	134	126	130	129	121	124	144	129	136
27	142	137	140	136	127	132	129	125	127	145	142	143
28	143	140	141	133	130	131	127	120	124	146	135	141
29	140	135	138	131	124	128	131	120	128	145	135	141
30	140	134	138	133	129	131	135	128	132	145	133	139
31	---	---	---	133	127	131	133	124	129	---	---	---
MONTH	146	133	140	141	124	134	136	117	127	146	125	136

COLUMBIA RIVER MAIN STEM

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12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	13.5	13.5	13.5	10.0	10.0	10.0	5.0	5.0	5.0	2.0	2.0	2.0
2	13.5	13.0	13.5	10.0	9.5	10.0	5.5	5.0	5.0	---	---	---
3	13.5	13.0	13.5	10.0	9.5	10.0	5.5	5.0	5.0	---	---	---
4	13.5	13.0	13.0	9.5	9.5	9.5	5.5	5.0	5.5	---	---	---
5	13.5	13.0	13.0	9.5	9.0	9.5	5.5	5.0	5.0	---	---	---
6	13.0	13.0	13.0	9.0	9.0	9.0	5.0	5.0	5.0	---	---	---
7	13.5	13.0	13.0	9.5	9.0	9.5	5.0	4.5	5.0	---	---	---
8	13.5	13.0	13.0	9.5	9.0	9.0	5.0	4.5	4.5	---	---	---
9	13.0	13.0	13.0	9.0	8.5	8.5	4.5	4.5	4.5	---	---	---
10	13.0	13.0	13.0	8.5	8.5	8.5	4.5	4.5	4.5	---	---	---
11	13.0	13.0	13.0	8.5	8.0	8.0	5.0	4.5	4.5	---	---	---
12	13.0	12.5	12.5	8.0	7.5	8.0	4.5	4.0	4.5	---	---	---
13	12.5	12.0	12.5	7.5	7.5	7.5	4.5	4.0	4.0	---	---	---
14	12.5	12.0	12.0	7.5	7.0	7.0	4.0	4.0	4.0	---	---	---
15	12.0	12.0	12.0	7.0	7.0	7.0	4.0	4.0	4.0	---	---	---
16	12.0	12.0	12.0	7.0	7.0	7.0	4.0	4.0	4.0	---	---	---
17	12.0	12.0	12.0	7.0	6.5	7.0	4.0	4.0	4.0	---	---	---
18	12.0	12.0	12.0	6.5	6.0	6.5	4.0	4.0	4.0	---	---	---
19	12.0	12.0	12.0	6.0	6.0	6.0	4.0	3.5	4.0	---	---	---
20	12.0	11.5	12.0	6.0	5.5	6.0	3.5	3.5	3.5	---	---	---
21	11.5	11.5	11.5	5.5	5.5	5.5	3.5	3.5	3.5	---	---	---
22	11.5	11.0	11.5	5.5	5.5	5.5	3.5	3.5	3.5	---	---	---
23	11.0	11.0	11.0	6.0	5.5	5.5	3.5	3.5	3.5	---	---	---
24	11.0	11.0	11.0	6.0	5.5	6.0	3.5	3.0	3.5	---	---	---
25	10.5	10.5	10.5	6.0	5.5	6.0	3.5	3.0	3.5	---	---	---
26	10.5	10.5	10.5	6.0	5.5	6.0	3.5	3.5	3.5	---	---	---
27	10.5	10.5	10.5	6.0	5.0	5.5	3.0	3.0	3.0	1.5	1.0	1.5
28	10.5	10.5	10.5	6.0	5.0	5.5	3.0	2.5	3.0	1.5	1.0	1.5
29	10.5	10.5	10.5	5.5	5.0	5.0	2.5	2.0	2.5	1.5	1.0	1.5
30	10.5	10.0	10.0	5.0	4.5	5.0	2.5	2.0	2.0	---	---	---
31	10.5	10.0	10.0	---	---	---	2.5	2.0	2.0	---	---	---
MONTH	13.5	10.0	12.0	10.0	4.5	7.5	5.5	2.0	4.0	2.0	1.0	1.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	7.5	7.0	7.5
2	---	---	---	---	---	---	---	---	---	8.0	7.5	7.5
3	---	---	---	---	---	---	---	---	---	8.0	7.5	7.5
4	---	---	---	---	---	---	---	---	---	8.0	8.0	8.0
5	4.5	3.5	4.0	4.5	4.0	4.5	4.5	4.0	4.5	8.0	7.5	8.0
6	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	8.0	7.5	8.0
7	5.0	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	8.5	8.0	8.5
8	4.5	4.0	4.0	4.5	4.0	4.0	4.5	4.0	4.0	8.5	8.0	8.5
9	4.5	4.0	4.0	4.5	4.0	4.0	4.5	4.0	4.5	9.0	8.0	8.5
10	5.0	4.0	4.5	5.0	4.5	5.0	5.0	4.5	5.0	9.0	8.0	8.5
11	5.0	4.0	4.5	5.0	4.5	5.0	5.0	4.0	4.5	9.0	8.0	8.5
12	5.0	4.0	4.5	5.0	4.5	5.0	5.0	4.5	5.0	9.5	8.5	9.0
13	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.0	9.5
14	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
15	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
16	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
17	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
18	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
19	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
20	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
21	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
22	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
23	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
24	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
25	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
26	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
27	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
28	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
29	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
30	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
31	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	10.0	9.5	9.5
MONTH	7.5	4.5	5.5	12.5	7.0	10.0	7.5	4.5	5.5	12.5	7.0	10.0

COLUMBIA RIVER MAIN STEM

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	12.0	11.0	11.5	16.0	15.5	15.5	18.5	16.0	17.5	17.0	16.0	17.0
2	12.5	11.5	12.0	15.0	14.5	15.0	19.5	18.0	18.5	16.5	15.5	16.0
3	13.0	12.0	12.5	14.5	14.0	14.5	19.0	18.0	18.5	16.5	15.5	16.0
4	12.5	12.0	12.5	15.0	14.0	14.5	20.0	18.0	19.0	16.0	15.5	16.0
5	13.0	12.5	12.5	16.0	15.0	15.5	20.0	19.0	19.5	16.5	15.5	16.0
6	13.5	12.5	13.0	17.0	16.0	16.5	19.0	18.0	18.5	16.5	15.5	16.0
7	13.5	13.0	13.0	17.5	16.5	17.0	19.0	17.5	18.5	17.0	16.0	16.5
8	13.5	13.0	13.5	17.5	16.5	17.0	19.0	18.0	18.5	17.5	16.5	17.0
9	14.0	13.0	13.5	17.0	16.0	16.5	19.0	17.5	18.5	17.5	17.0	17.5
10	14.0	13.5	14.0	17.0	16.5	17.0	19.5	18.0	18.5	17.5	17.0	17.5
11	14.5	13.5	14.0	17.5	16.5	17.0	19.0	18.0	18.5	17.5	17.0	17.5
12	14.5	14.0	14.0	17.5	17.0	17.0	18.5	17.5	18.0	17.5	17.0	17.5
13	14.5	14.0	14.5	17.5	17.0	17.0	19.0	18.0	18.5	17.5	17.0	17.5
14	14.5	14.0	14.5	17.5	16.5	17.0	18.5	17.0	17.5	17.5	17.0	17.0
15	14.5	14.0	14.5	17.5	16.5	17.0	17.0	16.0	16.5	17.5	16.5	17.0
16	14.5	14.0	14.5	18.0	16.5	17.5	16.5	15.0	16.0	17.5	16.5	17.0
17	14.5	14.0	14.5	18.0	17.0	17.5	17.5	16.5	17.0	17.5	17.0	17.0
18	15.0	14.0	14.5	18.0	17.0	18.0	18.5	17.0	17.5	17.5	17.0	17.5
19	14.5	14.0	14.5	18.5	18.0	18.0	19.5	18.0	18.5	18.0	17.0	17.5
20	14.5	14.0	14.0	18.5	18.0	18.5	19.5	18.5	19.0	17.5	17.0	17.5
21	14.0	13.5	14.0	18.5	18.0	18.5	19.0	18.0	18.5	17.5	16.5	17.0
22	14.0	13.5	14.0	18.5	17.5	18.0	19.5	18.5	19.0	17.5	16.5	17.0
23	14.5	13.5	14.0	18.5	17.5	18.5	19.0	18.0	18.5	17.5	16.5	17.0
24	15.0	14.0	14.5	20.0	18.5	19.5	19.0	17.5	18.0	17.5	17.0	17.0
25	16.0	14.5	15.0	19.5	18.5	19.0	19.5	17.5	18.0	17.5	16.5	17.0
26	16.5	15.0	15.5	18.5	17.0	17.5	18.5	17.5	18.0	17.5	16.5	17.0
27	16.5	15.5	16.0	17.0	16.0	16.5	18.5	17.5	18.0	17.0	16.5	16.5
28	17.0	15.5	16.5	17.5	16.5	17.0	18.0	17.5	17.5	16.5	16.0	16.5
29	16.5	16.0	16.5	17.5	16.5	17.0	17.5	16.0	17.0	16.0	15.5	16.0
30	16.5	16.0	16.5	17.0	16.0	16.5	17.0	16.5	17.0	16.0	15.5	16.0
31	---	---	---	17.5	16.0	16.5	17.5	16.5	17.0	---	---	---
MONTH	17.0	11.0	14.0	20.0	14.0	17.0	20.0	15.0	18.0	18.0	15.5	17.0

COLUMBIA RIVER MAIN STEM

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12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE TIME	NOV 30.78 1415	MAR 29.79 1200	MAY 22.79 1500	JUN 26.79 1140				
TOTAL CELLS/ML	620	4600	1500	4600				
DIVERSITY: DIVISION	0.4	0.1	1.5	1.1				
..CLASS	0.4	0.1	1.5	1.1				
...ORDER	1.2	0.7	2.1	1.4				
...FAMILY	1.4	0.7	2.4	1.4				
...GENUS	2.4	0.9	2.8	1.6				
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
...CHLOROCOCCALES								
....ODCYSTACEAE	--	--	73	2	210	14	51	1
....ANKISTRODESMUS	--	--	--	--	--	--	--	--
....CHLORELLA	--	--	--	--	--	--	--	--
....ODCYSTIS	--	--	--	--	--	--	--	--
...SCENEDESMACEAE							100	2
....SCENEDESMUS	--	--	--	--	--	--	--	--
..TETRASPORALES								
...PALMELLACEAE	--	--	--	--	--	--	--	--
...SPHAEROCYSTIS	--	--	--	--	--	--	--	--
...VOLVOCALES								
...CHLAMYDOMONADACEAE	--	--	--	--	--	--	120	2
....CHLAMYDOMONAS	--	--	--	--	--	--	--	--
CHRYSTOPHYTA								
..BACILLARIOPHYCEAE								
...CENTRALES								
...COSCINODISCACEAE							130	3
....CYCLOTELLA	120# 19		3000# 84		--	--	170	4
....MELOSIRA	43 7	--	--	13 1			39	1
...STEPHANODISCUS	--	--	--	51 3			--	--
...THALASSIOSIRA	--	--	--	--			--	--
..PENNALES								
...ACHNANTHACEAE							--	--
....ACHNANTHES	14 2	--	--	--			--	--
...COCCONEIS	--	--	--	--			--	--
...CYMBELLACEAE	--	--	--	--			--	--
...CYMBELLA	--	--	--	--			--	--
...FRAGILARIACEAE	72 12	440 10	300# 19				26	1
...ASTERIONELLA	260# 42	110 2	51 3				740# 16	
...FRAGILARIA	58 9	73 2	90 6				0	0
...SYNEORA	--	--	--	--			--	--
...GOMPHONEMACEAE							--	--
....GOMPHONEMA	--	36 1	--	--			--	--
...NITZSCHACEAE							--	--
....NITZSCHIA	--	--	90 6				0	0
...SURIPELLACEAE	--	--	--	--			--	--
....SURIPELLA	--	--	--	--			--	--
...TABELLARIACEAE	--	--	--	--			--	--
....TABELLARIA	--	--	--	--			--	--
..CHRYSTOPHYCEAE								
...CHRYSONOMADALES								
...OCHROMONADACEAE								
....DINOBRYON	--	--	--	--			--	--
CRYPTOPHYTA (CRYPTOMONADS)								
..CRYPTOPHYCEAE								
...CRYPTOMONADALES								
....CRYPTOCHRYSIDACEAE	--	--	--	--			--	--
....CHROOMONAS	--	--	--	--			--	--
...CRYPTOMONADACEAE	--	--	--	--			--	--
....CRYPTOMONAS	--	--	--	--			--	--
CYANOPHYTA (BLUE-GREEN ALGAE)								
..CYANOPHYCEAE								
...CHROOCOCCALES								
....CHROOCOCCACEAE	--	--		320# 21			--	--
...ANACYSTIS	--	--	--	--			--	--
...NORMOGONALES								
...OSCILLATORIAEAF	58 9	--	--	--			--	--
....LYNGBYA	--	--	--	390# 25			3200# 69	
...OSCILLATORIA	--	--	--	--			--	--
EUGLENOPHYTA (EUGLENOIDS)								
..EUGLENOPHYCEAE								
...EUGLENALES								
....EUGLENACEAE	--	--	--	--			0	0
....EUGLENA	--	--	--	--			--	--
PYRRHOPHYTA (FIRE ALGAE)								
..PYRRHOPHYCEAE								
...PERIDINIALES								
....GLENODINIACEAE	--	--		13 1			--	--
....GLENODINIUM	--	--	--	--			--	--
...PERIDINIACEAE	--	--	--	--			--	--
....PERIDINIUM	--	--	--	--			--	--

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
 * - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

COLUMBIA RIVER MAIN STEM

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

PHYTOPLANKTON ANALYSES: OCTOBER 1978 TO SEPTEMBER 1979

DATE TIME	JUL 25.79 1000	AUG 28.79 0830	SEP 26.79 1230			
TOTAL CELLS/ML	4500	1200	400			
DIVERSITY: DIVISION	0.4	0.6	1.3			
..CLASS	0.4	0.7	1.5			
...ORDER	0.5	1.6	2.2			
...FAMILY	0.5	2.2	2.3			
...GENUS	0.5	2.2	2.3			
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
....OOCYSTACEAE			9	1	--	--
....ANKISTRODES MUS	--	--	55	4	--	--
....CHLORELLA	64	1	--	--	51	13
....OOCYSTIS						
...SCENEDESMACEAE						
....SCENEDESMUS	52	1	--	--	--	--
...TETRASPORALES						
...PALMELLACEAE						
...SPHAEROCYSTIS	--	--	36	3	--	--
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
...CHLAMYDOMONAS	--	--	--	--	26	6
CHRYSTOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
...COSCINODISCACEAE					210*	52
...CYCLOTELLA	77	2	--	--	--	--
...MELOSIRA	--	--	--	--	--	--
...STEPHANODISCUS	--	--				
...THALASSIOSIRA	--	--	700*	56	--	--
...PENNALES						
...ACHNANTHACEAE						
...ACHNANTHES	--	--	--	--	--	--
...COCconeis			9	1	--	--
...CYMBELLACEAE						
...CYMBELLA	--	--	64	5	--	--
...FRAGILARIACEAE						
...ASTERIONELLA	52	1	--	--	--	--
...FRAGILARIA	--	--	240*	19	--	--
...SYNEDRA	0	0	--	--	--	--
...GOMPHONEMACEAE			18	1	--	--
...GOMPHONEMA	--	--				
...NITZSCHACEAE			18	1	39	10
...NITZSCHIA	--	--				
...SURIRELLACEAE			27	2	--	--
...SURIRELLA	--	--				
...TAHELLARIACEAE			18	1	13	3
...TAHELLARIA	--	--				
..CHRYSTOPHYCEAE						
...CHRYSSOMONADALES						
...OCHROMONADACEAE	--	--	18	1	13	3
...DINOBYRON						
CHRYTOPHYTA (CRYPTOMONADS)						
..CHRYTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE	0	0	9	1	39	10
...CHROOMONAS						
...CRYPTOMONADACEAE	0	0	--	--	--	--
...CRYPTOMONAS						
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE	--	--	--	--	13	3
...ANACYSTIS						
...MORMONONALES						
...OSCILLATORIACEAE	--	--	--	--	--	--
...LYNGBYA						
...OSCILLATORIA	4300*	94	--	--	--	--
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE	--	--	--	--	--	--
...EUGLENA						
PYRROPHYTA (FINE ALGAE)						
..DINOPHYCEAE						
...PERIDINIALES						
...GLENODINIACEAE	--	--	--	--	--	--
...GLENODINIUM						
...PERIDINIACEAE	--	--	27	2	--	--
...PERIDINIUM						

NOTE: * - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
 0 - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

KETTLE RIVER BASIN

12401500 KETTLE RIVER NEAR FERRY, WA
(international gaging station)

LOCATION.--Lat 48°56'53", long 118°45'55", in SE1/4 sec. 10, T. 40 N., R. 32 E., Ferry County, Hydrologic Unit 17020002, on right bank 0.5 mi (0.8 km) upstream from Catherine Creek, 1.3 mi (2.1 km) south of international boundary and Ferry, 3.2 mi (5.1 km) upstream from Toroda Creek, and at mile 84.02 (135.2 km).

DRAINAGE AREA.--2,220 mi² (5,750 km²), approximately.

PERIOD OF RECORD.--August 1928 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,036.8 ft (559.06 m) National Geodetic Vertical Datum of 1929, international joint adjustment of 1947. Prior to Nov. 23, 1928, nonrecording gage at same site and datum.

REMARKS.--Records good except those for Nov. 11 to Feb. 9, which are fair. Several small diversions above station for irrigation. No regulation.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--51 years, 1,495 ft³/s (42.34 m³/s), 1,083,000 acre-ft/yr (1,340 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,200 ft³/s (600 m³/s) May 29, 1948, gage height, 21.15 ft (6.447 m); minimum, 14 ft³/s (0.40 m³/s), discharge measurement, Jan. 23, 1950, but may have been less during period of ice effect Jan. 18-23, 1950.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,800 ft³/s (306 m³/s) May 6, gage height, 17.08 ft (5.206 m); minimum, 112 ft³/s (3.17 m³/s) Sept. 30, gage height, 9.39 ft (2.862 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1190	530	371	135	190	224	375	5000	4500	1000	230	155
2	1120	530	340	135	190	221	363	5660	4960	1110	221	155
3	1040	530	325	140	195	220	354	5730	5000	1230	200	172
4	900	572	320	140	200	224	356	6290	6120	1150	190	180
5	950	600	290	140	200	225	356	9000	5020	1010	109	211
6	900	500	240	140	205	262	372	10400	5470	904	100	251
7	857	570	170	140	210	263	405	9140	4330	1000	172	240
8	820	590	155	140	200	273	471	6000	3600	1300	163	234
9	780	600	190	145	192	260	499	6040	3270	1100	150	224
10	745	500	220	145	192	260	499	6040	3270	1040	150	224
11	724	300	262	150	109	209	510	5500	3300	904	142	250
12	731	270	200	160	102	305	520	5410	3300	972	137	262
13	724	260	240	175	215	303	554	5200	3150	924	120	251
14	690	250	215	105	221	301	566	5110	2770	836	123	231
15	686	270	210	190	210	299	503	5610	2300	706	120	200
16	600	395	220	190	203	312	604	6570	2100	602	135	192
17	650	405	250	190	207	323	697	6930	2090	630	140	170
18	630	405	270	200	207	316	715	6360	2060	590	160	169
19	620	350	260	205	209	314	1050	6000	1920	542	160	160
20	590	290	205	210	200	310	1000	5740	2110	505	175	153
21	590	200	276	215	204	323	1050	5500	2300	470	170	145
22	630	250	200	210	194	330	1060	6000	2010	440	169	140
23	602	340	204	210	163	342	1110	7100	1700	410	153	135
24	570	425	200	205	190	302	1190	9110	1650	305	147	120
25	630	450	205	205	190	391	1270	9090	1520	367	153	126
26	630	435	250	200	210	412	1430	8630	1300	349	160	121
27	614	425	240	200	235	422	1800	9440	1200	327	190	119
28	602	305	210	200	220	411	2470	7510	1100	307	189	110
29	602	371	180	195	---	401	3450	5710	1100	284	172	114
30	590	362	140	195	---	397	4410	4060	1000	245	163	114
31	560	---	140	190	---	305	---	4570	---	240	166	---
TOTAL	22740	12000	7674	5400	5090	4703	30304	207600	98010	22345	5105	5303
MEAN	733	430	240	177	163	153	967	6699	2934	720	167	170
MAX	1190	600	371	135	195	220	410	10400	6120	1300	230	262
MIN	500	250	140	135	103	103	354	4570	1000	240	123	114
AC-FT	45220	25560	15220	10070	11300	19250	60110	411900	174600	44200	10240	10600
CAL YR 1978	TOTAL	620127	MEAN	1715	MAX	10900	MIN	96	AC-FT	1247000		
WTR YR 1979	TOTAL	423137	MEAN	1159	MAX	10400	MIN	114	AC-FT	839200		

KETTLE RIVER BASIN

12404500 KETTLE RIVER NEAR LAURIER, WA
(International gaging station)

LOCATION.--Lat 48°59'54", long 118°12'55", in SW1/4 sec. 11, T.49 N., R.36 E., Ferry County, Hydrologic Unit 17020002, on right bank 1,000 ft (305 m) downstream from Deep Creek, 1.1 mi (1.8 km) south of international boundary, 1.1 mi (1.8 km) southeast of Laurier, and at mile 29.71 (47.80 km).

DRAINAGE AREA.--3,800 mi² (9,800 km²), approximately.

PERIOD OF RECORD.--September 1929 to current year.

REVISED RECORDS.--WSP 737: 1930-31. WSP 862: 1937. WSP 882: 1938.

GAGE.--Water-stage recorder. Datum of gage is 1,425.5 ft (434.49 m) National Geodetic Vertical Datum of 1929, international joint adjustment of 1947. Prior to Jan. 3, 1930, nonrecording gage at same site and datum.

REMARKS.--Records excellent except those for Dec. 4 to Mar. 13, which are fair. Diversions for irrigation of about 720 acres (290 ha²) in the United States (for 1946 from United States reports), and 2,000 acres (850 ha²) in Canada from the Canada Year Book for 1946.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--50 years, 2,861 ft³/s (81.02 m³/s), 2,073,000 acre-ft/yr (2,560 ha²/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft³/s (991 m³/s) May 29, 1948, gage height, 17.25 ft (5.250 m); minimum, 88 ft³/s (2.49 m³/s) Dec. 1, 1936, gage height, 2.20 ft (0.671 m), but was probably less during winter of 1929-30.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May or June 1894 reached a stage of about 22 ft (6.7 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,400 ft³/s (493 m³/s) May 6, gage height, 12.00 ft (3.658 m); minimum, 238 ft³/s (6.74 m³/s) Sept. 30, gage height, 2.50 ft (0.762 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2150	908	735	260	350	450	926	9010	7000	1000	510	332
2	2050	958	722	260	355	450	903	9700	8230	2000	490	337
3	1920	950	625	270	360	450	882	9970	9500	2000	445	332
4	1840	900	540	270	370	460	868	10300	10500	2070	440	360
5	1770	1000	510	260	380	400	864	12900	9010	1910	415	430
6	1700	1000	450	260	385	530	878	17000	9430	1700	390	445
7	1620	1040	400	260	390	550	928	15700	8020	1830	382	465
8	1550	1050	350	260	400	570	968	13200	6610	2120	360	460
9	1480	1000	400	265	390	560	1880	11500	5940	2230	350	440
10	1420	1120	500	270	380	590	1160	10500	5760	1950	337	450
11	1370	951	550	275	370	600	1226	9670	5030	1770	310	450
12	1340	725	620	290	360	600	1256	9270	6030	1720	306	460
13	1340	620	500	310	410	600	1290	9100	5760	1690	294	475
14	1320	600	470	330	430	620	1340	8810	5120	1590	282	455
15	1270	630	440	350	430	620	1370	9330	4430	1400	290	425
16	1250	703	470	350	410	650	1390	11000	4010	1370	290	506
17	1220	837	510	350	400	680	1540	11900	3000	1270	294	373
18	1180	922	560	350	400	701	2040	11100	3710	1180	366	355
19	1150	851	550	350	400	708	2790	10500	3540	1110	332	337
20	1120	789	550	370	390	721	2440	9840	3600	1030	350	310
21	1090	600	550	380	390	745	2380	9640	4010	961	342	306
22	1080	600	550	380	390	776	2350	10100	3670	900	342	294
23	1110	674	560	380	370	813	2480	11500	3290	848	320	296
24	1070	709	570	370	360	862	2540	14100	3040	786	314	278
25	1060	650	520	370	380	933	2600	15200	2830	750	302	270
26	1090	651	490	360	390	1010	2900	14300	2600	714	324	262
27	1080	644	470	360	430	1040	2480	15100	2420	692	332	258
28	1060	610	410	360	450	1030	4650	13600	2250	662	350	250
29	1050	769	370	360	---	995	6200	10300	2100	626	360	242
30	1040	742	310	355	---	972	7800	8610	1990	598	332	230
31	1020	---	270	350	---	950	---	7900	---	554	346	---
TOTAL	41810	25094	15542	9975	10930	21745	63307	351659	155080	42163	10078	10000
MEAN	1349	803	501	322	359	701	2110	11349	5196	1360	351	360
MAX	2150	1120	735	380	450	1040	7800	17000	10500	2830	510	480
MIN	1020	600	270	260	350	490	864	7900	1950	554	262	230
AC-FY	82930	50770	30830	19790	21690	43130	125400	697500	309200	83630	21500	21440

CAL YR 1978 TOTAL 1175124 MEAN 3220 MAX 18200 MIN 250 AC-FY 2331000
WTR YR 1979 TOTAL 760282 MEAN 2603 MAX 17000 MIN 238 AC-FY 1500000

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LOCATION.--Lat 49°47'05", long 118°07'30", in SW¼SW¼ sec.10, T.38 N., R.37 E., Ferry County, Hydrologic Unit 17020002, at county road bridge 0.1 mi (0.2 km) downstream from Toulou Creek, 3.1 mi (3.6 km) east of Barstow and at mile 10.9 (17.5 km).

PERIOD OF RECORD.--Water years 1940-62, 1965-70 (partial-record station), 1972, 1975 to current year.

REMARKS. --Water discharge obtained by routing flow from nearby station; discharge value is fair.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by the Washington State Department of Ecology.

DATE	TIME	STREAM- FLOW INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)
OCT 1 1976							
10----	1000	1540	95	8.8	9.7	5	3.0
NOV							
08----	1500	1140	150	8.5	3.0	10	0.0
APR 1 1970							
10----	1425	1200	220	7.9	9.6	5	10
MAY							
08----	1230	14100	65	7.1	7.5	5	10
JUN							
07----	1230	10600	70	8.3	14.4	0	10
JUL							
10----	1050	2110	105	7.8	19.5	5	0.0
AUG							
07----	1210	400	174	7.0	22.2	5	10
SEP							
11----	1205	401	145	8.1	17.5	5	0.

DATE	ORTHO- DISE- SOLVED (MG/L)	NITRO- GENE- NO ₂ +NO ₃ TOTAL (MG/L AS N)	NITRO- GENE- AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS- TOTAL (MG/L AS P)	PHOS- PHORUS- ORTHOPHOS- PATE DISE- SOLVED (MG/L AS P)	PHOS- PHATE- ORTHOPHOS- PATE DISE- SOLVED (MG/L AS PO ₄)
OCT 1 1978						
10:00	11.2	.02	.01	.000	.01	.03
NOV						
00:00	12.6	.00	.00	.010	.02	.06
APR 1 1979						
10:00	10.0	.03	.01	.010	.00	.00
MAY						
00:00	10.0	.04	.01	.210	.00	.00
JUN						
00:00	9.3	.06	.03	.000	.02	.06
JUL						
10:00	9.7	.02	.02	.000	.00	.00
AUG						
07:00	9.1	.00	.00	.010	.03	.09
SEP						
10:00	9.0	.01	.02	.000	.01	.03

COLVILLE RIVER BASIN

12406500 LOON LAKE NEAR LOON LAKE, WA

LOCATION.--Lat 46°42'42", Long 117°30'14" in SW1/4 sec. 11, T.29 N., R.41 E., Stevens County, Hydrologic Unit 17020003, at south end of Loon Lake, 2.7 mi (4.3 km) southeast of town of Loon Lake.

DRAINAGE AREA.--14.1 mi² (36.5 km²).

PERIOD OF RECORD.--April 1950 to current year, chemical analyses October 1970 to September 1971.

REVISED RECORDS.--WSP 1216: 1950. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929. Prior to Sept. 29, 1951, water-stage recorder at site 0.1 mi (0.3 km) north at same datum.

REMARKS.--Elevation controlled by dam at lake outlet. Some pumping for domestic use and irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 2,382.71 ft (726.250 m) May 3, 1950, but may have been higher sometime in 1951 water year while water-stage recorder was not operating; minimum observed, 2,378.14 ft (724.857 m) Nov. 8, 1977, but may have been lower during period when water was below the intakes Aug. 1 to Dec. 14, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 2,380.34 ft (725.528 m) May 12; minimum, 2,378.69 ft (725.025 m) Sept. 30.

ELEVATION: IN FEET NGVD; WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2379.49	2379.27	2379.23		---	2379.87	2380.15	2380.15	2380.18	2379.67	2379.40	2379.97
2	2379.49	2379.26	2379.24		---	2379.80	2380.15	2380.15	2380.18	2379.89	2379.38	2379.97
3	2379.48	2379.27	2379.23		---	2379.80	2380.15	2380.15	2380.18	2379.88	2379.36	2379.98
4	2379.47	2379.29	2379.25		---	2379.79	2380.15	2380.15	2380.17	2379.87	2379.34	2379.99
5	2379.46	2379.28	2379.24		---	2379.81	2380.15	2380.21	2380.15	2379.86	2379.31	2379.99
6	2379.46	2379.27	2379.24		---	2379.81	2380.15	2380.32	2380.12	2379.85	2379.29	2379.98
7	2379.45	2379.27	2379.23		---	2379.83	2380.08	2380.32	2380.11	2379.84	2379.28	2379.97
8	2379.44	2379.27	2379.23		---	2379.84	2380.08	2380.32	2380.11	2379.83	2379.26	2379.96
9	2379.44	2379.27	2379.24		---	2379.84	2380.08	2380.32	2380.12	2379.81	2379.23	2379.95
10	2379.43	2379.26	2379.24		---	2379.84	2380.09	2380.32	2380.12	2379.79	2379.22	2379.94
11	2379.43	2379.23	---		---	2379.84	2380.09	2380.32	2380.12	2379.77	2379.20	2379.92
12	2379.42	2379.23	---		---	2379.87	2380.09	2380.33	2380.12	2379.75	2379.18	2379.91
13	2379.40	2379.22	---		---	2379.90	2380.11	2380.32	2380.10	2379.74	2379.16	2379.90
14	2379.39	2379.21	---		---	2379.92	2380.11	2380.33	2380.08	2379.72	2379.15	2379.88
15	2379.38	2379.20	---		---	2379.95	2380.11	2380.33	2380.07	2379.71	2379.16	2379.87
16	2379.38	2379.21	---		---	2379.99	2380.11	2380.33	2380.06	2379.69	2379.16	2379.86
17	2379.37	2379.22	---		---	2380.00	2380.13	2380.33	2380.07	2379.67	2379.16	2379.85
18	2379.37	2379.23	---		---	2380.03	2380.13	2380.33	2380.07	2379.66	2379.14	2379.84
19	2379.36	2379.22	---		---	2380.03	2380.13	2380.28	2380.06	2379.64	2379.13	2379.83
20	2379.36	2379.20	---		---	2380.04	2380.13	2380.27	2380.04	2379.64	2379.12	2379.82
21	2379.36	2379.20	---		---	2380.05	2380.14	2380.28	2380.02	2379.62	2379.11	2379.82
22	2379.34	2379.19	---		---	2380.06	2380.14	2380.28	2380.00	2379.60	2379.10	2379.80
23	2379.33	2379.19	---		---	2380.07	2380.14	2380.28	2379.99	2379.57	2379.08	2379.79
24	2379.35	2379.18	---		---	2380.08	2380.14	2380.28	2379.98	2379.55	2379.07	2379.78
25	2379.31	2379.18	---		---	2380.08	2380.14	2380.28	2379.96	2379.54	2379.05	2379.77
26	2379.30	2379.18	---		---	2379.09	2380.08	2380.14	2380.27	2379.94	2379.51	2379.76
27	2379.30	2379.18	---		---	2379.09	2380.09	2380.14	2380.24	2379.92	2379.50	2379.75
28	2379.29	2379.19	---		---	2379.90	2380.10	2380.14	2380.22	2379.90	2379.48	2379.74
29	2379.29	2379.20	---		---	2380.13	2380.15	2380.20	2379.89	2379.47	2379.99	2379.72
30	2379.28	2379.20	---		---	2380.15	2380.15	2380.19	2379.87	2379.44	2379.99	2379.70
31	2379.27	---	---		---	2380.15	---	2380.19	---	2379.42	2379.99	---
MEAN	2379.38	2379.23	---	---	---	2379.96	2380.13	2380.27	2380.06	2379.68	2379.16	2379.87
MAX	2379.49	2379.29	---	---	---	2380.15	2380.15	2380.33	2380.18	2379.89	2379.40	2379.99
MIN	2379.27	2379.18	---	---	---	2379.79	2380.08	2380.15	2379.87	2379.42	2379.09	2379.70

COLVILLE RIVER BASIN

59

12408000 COLVILLE RIVER AT BLUE CREEK, WA

LOCATION.--Lat 49°19'13", long 117°49'07", in NW¼NW¼ sec.31, T.33 N., R.40 E., Stevens County, Hydrologic Unit 17020005, on right bank 30 ft (9 m) upstream from county road bridge, just downstream from mouth of Blue Creek at town of Blue Creek, 5.5 mi (8.8 km) northwest of Chewelah, and at mile 32.1.

DRAINAGE AREA.--420 mi² (1,109 km²).

PERIOD OF RECORD.--October 1922 to September 1923, April to September 1924, July 1960 to October 1965, October 1978 to September 1979 (discontinued). Discharge measurements only, September 1967 and September 1975 to August 1977. Chemical analyses October 1975 to September 1976.

GAGE.--Water-stage recorder. Altitude of gage is 1,020 ft (494 m), from topographic map. Prior to Oct. 1, 1924, staff gage on left bank at different datum.

REMARKS.--Records excellent except those for Oct. 1 to Feb. 15, which are fair. Many small diversions for irrigation above station. No known regulation.

AVERAGE DISCHARGE.--6 years (1960-65, 1979) 142 ft³/s (4.02 m³/s), 102,900 acre-ft (127 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 834 ft³/s (23.6 m³/s) Apr. 23, 1965, gage height, 5.09 ft (1.551 m); minimum observed, 5.3 ft³/s (0.15 m³/s) Aug. 13, 1924, gage height, 0.09 ft (0.027 m), site and datum then in use. Minimum gage height, -0.42 ft (-0.128 m) Aug. 11, 1979, present datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 302 ft³/s (8.55 m³/s) Mar. 8, gage height, 2.44 ft (0.744 m); minimum, 8.8 ft³/s (0.25 m³/s) Aug. 11, gage height, -0.42 ft (-0.128 m).

DISCHARGE IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	60	60	33	36	170	121	152	81	27	18	35
2	60	64	58	37	35	151	120	140	77	44	11	35
3	60	68	60	39	35	139	117	140	73	47	12	41
4	60	70	50	37	36	125	114	155	70	39	14	48
5	59	70	48	34	37	173	114	166	67	32	13	43
6	59	66	36	34	39	220	118	207	65	26	17	39
7	59	63	34	35	44	241	121	242	64	31	15	40
8	50	63	32	36	40	200	121	235	63	31	13	39
9	50	61	33	37	55	275	122	222	60	25	12	38
10	50	59	36	37	60	223	127	206	57	21	12	38
11	57	39	44	38	70	205	121	190	55	17	12	39
12	57	37	50	39	80	206	118	176	49	10	13	37
13	56	36	47	39	90	207	120	166	48	19	15	37
14	56	30	43	38	116	194	131	156	48	19	20	36
15	56	42	42	38	104	188	124	150	48	19	33	35
16	56	62	44	38	201	213	121	145	46	20	30	35
17	56	69	45	39	139	233	132	138	53	18	23	35
18	56	67	46	40	120	210	149	133	66	17	19	33
19	55	61	48	40	151	189	130	127	50	17	19	34
20	55	45	49	40	161	176	120	124	56	16	25	33
21	55	44	52	41	136	170	122	120	53	15	29	35
22	55	50	55	41	110	164	119	114	49	15	25	35
23	56	63	58	40	97	160	120	111	45	15	25	34
24	56	62	61	39	94	163	126	122	42	15	21	35
25	57	61	50	39	144	170	125	117	39	16	19	34
26	57	60	48	38	246	166	121	110	33	18	17	35
27	57	60	48	38	264	160	121	102	30	17	16	35
28	57	50	44	38	220	152	124	99	25	15	19	35
29	57	57	37	37	---	142	130	94	21	19	27	35
30	57	57	30	37	---	136	148	90	21	19	27	37
31	57	---	29	36	---	120	---	85	---	13	33	---
TOTAL	1772	1720	1409	1172	3036	5744	3733	4574	1562	601	604	1100
MEAN	57.2	57.3	45.5	37.8	100	189	124	148	52.1	22.0	19.5	36.7
MAX	60	70	61	41	240	290	149	242	81	47	33	40
MIN	55	36	29	33	35	125	114	85	21	13	11	33
AC-FT	3510	3410	2790	2320	6040	11390	7400	9070	3100	1350	1200	2100

WTR YR 1979 TOTAL 27107 MEAN 74.3 MAX 290 MIN 11 AC-FT 53770

LOCATION.--Lat 48°34'44", long 117°51'56", in SW1/4 sec.35, T.36 N., R.39 E., Stevens County, Hydrologic Unit 1702003, on right bank 3.0 mi (4.9 km) northeast of Colville, 5.3 mi (8.5 km) downstream from North Fork, and at mile 10.9 (17.5 km).

REVISED RECORDS.--WSP 1042: 1940, 1942. WSP 1033: Drainage area.

GAGE.--Water-stage recorder. Altitude 1,950 ft (594 m) from topographic map. Prior to Mar. 2, 1940; nonrecording gage and Mar. 2, 1940, to Oct. 5, 1959, water-stage recorder at site 0.5 mi (0.8 km) upstream at different datum (used as supplementary gage Nov. 2, 1952 to Oct. 5, 1959). Nov. 2, 1952, to Oct. 5, 1959, nonrecording gage and crest-stage gage at site 300 ft (90 m) upstream at datum 0.47 ft (0.143 m) higher.

REMARKS.--Records excellent except those for January and February, which are fair. No regulation. Diversions for irrigation of about 50 acres (20 hm³) above station.

AVERAGE DISCHARGE.--35 years (water years 1940-72, 1978-79) 46.8 ft³/s (1.325 m³/s), 7.66 in/yr (195 mm/yr), 33,910 acre-ft/yr (41.8 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 694 ft³/s (19.7 m³/s) Apr. 24, 1969, gage height, 5.37 ft (1.637 m); maximum gage height, 5.65 ft (1.722 m) May 10, 1961 (backwater from bridge); minimum discharge, 3.2 ft³/s (0.091 m³/s) Jan. 10, 1962, result of freezeup, but may have been less during period of no gage-height record Feb. 1-4, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 280 ft³/s (7.36 m³/s) May 6, gage height, 3.98 ft (1.183 m); minimum, 4.5 ft³/s (0.13 m³/s) Aug. 12, 13, gage height, 2.04 ft (0.622 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	16	14	12	6.0	6.6	17	30	142	91	21	6.2	6.4		
2	16	14	12	6.5	6.2	15	29	137	49	26	5.9	6.8		
3	16	14	12	7.0	6.6	14	28	131	45	22	5.9	11		
4	16	16	12	6.5	6.6	14	28	140	44	19	5.9	13		
5	15	16	10	6.3	7.0	15	30	104	42	10	5.6	10		
6	15	15	9.0	6.0	8.0	17	36	244	41	17	5.6	9.6		
7	14	14	8.0	6.2	10	22	42	220	40	17	5.3	8.4		
8	14	14	8.7	6.2	12	25	44	100	39	16	5.3	8.0		
9	14	14	9.5	6.3	14	22	50	164	36	15	5.3	7.6		
10	14	13	11	6.4	16	21	51	157	34	14	5.0	7.6		
11	14	11	12	6.6	10	21	49	144	32	14	5.0	7.6		
12	14	11	12	6.8	20	22	44	133	31	14	4.8	7.2		
13	14	11	10	7.0	22	42	54	126	30	14	4.8	7.2		
14	14	10	10	6.8	21	22	58	120	30	13	5.6	6.9		
15	14	11	10	6.8	20	23	56	114	29	12	7.6	6.6		
16	14	12	11	6.6	19	27	57	109	29	12	6.9	6.2		
17	14	12	12	6.8	18	32	81	103	32	11	6.2	6.2		
18	14	12	12	6.8	19	32	88	94	32	10	5.9	6.2		
19	14	12	12	7.0	10	33	81	90	30	10	5.6	6.6		
20	14	11	12	7.0	19	34	74	85	29	9.6	6.6	5.9		
21	14	12	12	7.2	19	34	71	81	27	9.2	6.6	5.9		
22	14	12	12	7.0	18	34	77	77	26	8.8	7.2	5.9		
23	14	12	12	7.0	16	36	72	75	25	8.4	6.6	5.9		
24	14	12	12	7.0	19	39	72	85	23	8.4	6.9	5.6		
25	14	12	11	6.8	20	44	74	75	22	8.4	9.6	5.6		
26	14	12	9.0	6.6	23	42	62	64	21	8.0	8.0	5.6		
27	14	12	9.5	6.6	20	40	93	65	19	7.6	7.2	5.6		
28	14	12	9.6	6.8	18	36	109	63	19	7.6	6.9	5.6		
29	14	12	7.5	6.8	---	33	126	61	18	7.2	6.6	5.9		
30	14	12	6.6	6.6	---	32	140	57	17	6.9	6.6	5.9		
31	14	---	6.0	6.6	---	31	---	55	---	6.6	10	---		
TOTAL	444	377	323.2	296.8	441.4	851	1924	3595	942	391.7	197.2	215.7		
MEAN	14.3	12.0	10.4	8.67	15.8	27.5	64.1	116	31.4	12.6	6.36	7.19		
MAX	16	16	12	7.2	23	44	140	244	51	24	10	13		
MIN	14	10	6.0	6.0	6.2	14	28	55	17	6.6	4.8	5.6		
CF5M	17	15	13	10	19	33	77	140	38	15	8.08	8.09		
1M	17	17	14	10	20	38	86	161	42	18	6.09	10		
AC-FT	881	768	641	410	676	1690	3820	7130	1870	777	391	428		
CAL VR 1978	TOTAL	17018.5	MEAN	40.6	MAX	236	MIN	4.5	CF5M	.56	14	7.63	AC-FT	33760
OTH VR 1979	TOTAL	90	MEAN	27.1	MAX	244	MIN	4.5	CF5M	.33	14	4.44	AC-FT	19050

12409000 COLVILLE RIVER AT KETTLE FALLS, WA
LOCATION.--Lat 48°35'40", long 116°05'41", in NE1/4 sec.30, T.30 N., R.30 E., Stevens County, Hydrologic Unit 17020005, on right bank 600 ft (180 m) downstream from Washington Water Power Co.'s hydroelectric plant at foot of Meyers Falls, 1.0 mi (1.6 km) south of town of Kettle Falls, and at mile 5.0 (8.0 km).
DRAINAGE AREA.--1,007 mi² (2,609 km²).

PERIOD OF RECORD.--October 1922 to current year. Published as "as Meyers Falls" 1922-38.

REVISED RECORDS.--WSP 1310: 1958(W), 1961(W), 1968(W). WSP 1636: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,400 ft (427 m), from topographic map. Prior to Oct. 21, 1932, nonrecording gage at site 500 ft (150 m) upstream at different datum. Oct. 21, 1932, to Sept. 19, 1938, nonrecording gages at site 200 ft (60 m) upstream at different datum. Sept. 20, 1938, to Mar. 20, 1949, nonrecording gage at present site and datum.

REMARKS. --Water-discharge records good except those for Dec. 7 to Mar. 11, which are fair. Several ditches above station divert water for irrigation. Regulation at low flow by powerplant.

AVERAGE DISCHARGE.--57 years, 302 ft³/s (8.553 m³/s), 210,000 acre-ft/yr (270 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,440 ft³/s (97.4 m³/s) Jan. 21, 1974, gage height, 9.84 ft (2.992 m); maximum gage height, 10.17 ft (3.100 m) Apr. 25, 1956; minimum discharge observed, 0.5 ft³/s (0.014 m³/s) Aug. 15, 1936.

EXTREMES FOR CURRENT YEAR. -- Maximum discharge, 918 ft³/s (26.0 m³/s) May 7, gage height, 6.92 ft (2.109 m)
minimum, 13 ft³/s (0.37 m³/s) Aug. 8, 9, gage height, 4.71 ft (1.435 m) result of regulation by powerplant.

		MEAN VALUES											
		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	111	138	70	100	388	291	500	229	63	26	44	
2	111	110	138	70	95	300	278	527	204	89	25	91	
3	106	121	138	70	95	280	269	513	191	73	23	67	
4	104	118	134	65	95	290	269	548	184	95	23	77	
5	100	118	94										
6	111	121	74	88	95	350	259	674	174	78	24	67	
7	109	116	69	75	100	395	282	750	168	53	23	56	
8	104	113	85	60	100	373	291	709	165	66	17	59	
9	102	125	98	55	105	425	286	660	152	68	13	58	
10	102	114	100	60	115	425	301	632	144	62	17	57	
11	100	109	120	55	115	437	304	576	135	53	19	58	
12	100	87	110	65	110	419	301	540	132	49	15	57	
13	100	92	90	70	125	407	306	520	118	45	14	56	
14	100	96	109	70	170	401	320	487	111	53	15	56	
15	93	91	95	65	280	389	315	461	113	50	16	58	
16	97	119	100	75	309	395	311	443	113	46	37	54	
17	102	140	105	80	320	431	335	425	111	44	41	59	
18	102	134	105	85	300	431	384	467	113	44	40	48	
19	102	109	105	80	300	407	384	384	129	41	35	48	
20	102	95	105	90	300	398	362	362	130	33	31	48	
21	102	120	115	95	300	373	365	340	129	31	32	49	
22	102	117	125	90	280	367	335	325	118	38	44	47	
23	102	120	120	95	280	356	335	311	109	30	39	47	
24	100	132	125	95	230	356	345	320	97	29	37	47	
25	104	133	105	95	240	362	351	330	95	26	34	50	
26	102	124	100	95	300	373	356	396	85	26	32	51	
27	104	125	105	95	300	362	367	287	74	25	32	48	
28	100	127	95	100	410	351	395	269	70	26	32	46	
29	106	139	85	100	---	335	425	252	65	20	32	54	
30	106	139	75	95	---	320	461	252	60	26	31	48	
31	106	---	75	95	---	306	---	301	---	26	33	---	
TOTAL	3210	3525	3218	2465	5675	11541	9867	13908	3949	1470	85		

COLVILLE RIVER BASIN

12409000 COLVILLE RIVER AT KETTLE FALLS, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-72, 1974 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: November 1969 to June 1971.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, and specific conductance furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)
OCT * 1978							
10...	0930	102	325	7.4	10.8	20	15
NOV							
08...	1400	113	380	8.3	5.1	28	25
APR * 1979							
10...	1320	306	485	7.6	10.2	5	16
MAY							
08...	1330	702	335	7.0	9.9	5	31
JUN							
05...	1125	104	460	7.9	10.7	5	15
JUL							
10...	1000	63	460	7.7	22.5	20	23
AUG							
07...	1140	23	388	7.9	21.2	0	22
SEP							
11...	1120	57	365	7.9	16.8	5	18

DATE	OXYGEN- DIS- SOLVED (MG/L)	NITRO- GEN- NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN- AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS- TOTAL (MG/L AS P)	PHOS- PHORUS- ORTHOPHOS- DIS- SOLVED (MG/L AS P)	PHOS- PHATE- ORTHOPHOS- DIS- SOLVED (MG/L AS PO4)
OCT * 1978						
10...	11.0	.08	.04	.050	.06	.18
NOV						
08...	12.3	.27	.09	.080	.00	.00
APR * 1979						
10...	11.0	.24	.05	.040	.03	.09
MAY						
08...	9.9	.12	.04	.130	.01	.03
JUN						
05...	9.0	.06	.11	.080	.02	.06
JUL						
10...	6.9	.08	.04	.040	.01	.03
AUG						
07...	6.9	.02	.01	.060	.07	.21
SEP						
11...	9.7	.06	.04	.040	.01	.03

EXPLANATION

4225

○ 72.9

Gaging station

Top numbers are abbreviated versions of those given in the station descriptions in the report.
Bottom numbers are river miles where determined.



Powerhouse

Stream, open flume, or canal showing direction of flow.

Penstock, tunnel, closed flume, or pipe showing direction of flow.

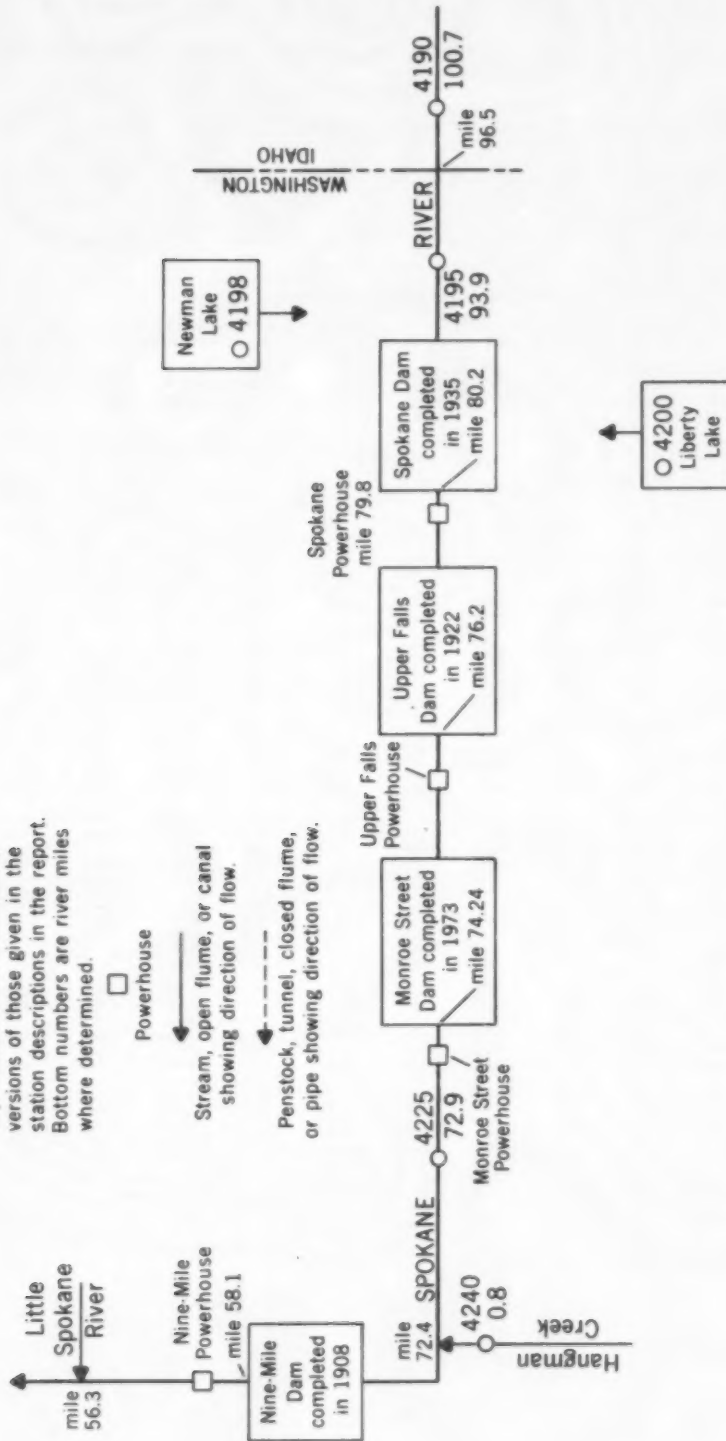


Figure 8. Gaging stations in Spokane River basin above Little Spokane River.

SPOKANE RIVER BASIN

12419000 SPOKANE RIVER NEAR POST FALLS, ID

LOCATION.--Lat 47°42'10", long 116°58'40", in SW¼SW¼ sec.4, T.50 N., R.5 W., Kootenai County, Hydrologic Unit 17010305, on right bank 1 mi (1.6 km) downstream from powerplant of Washington Water Power Co., 1.5 mi (2.4 km) southwest of Post Falls, and at mile 100.7 (162.0 km).

DRAINAGE AREA.--3,840 mi² (9,946 km²), approximately, of which about 122 mi² (316 km²) in the vicinity of Hayden Lake is noncontributing to this station.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1912 to current year (prior to January 1913 monthly discharge only, published in WSP 870 and 1736). Prior to October 1949, published as "at Post Falls".

GAGE.--Water-stage recorder. Datum of gage is 2,050 ft (624.840 m) referred to originally accepted elevation of 2,157.40 ft (657.575 m) for the Geological Survey bench mark in southeast corner of Idaho First National Bank Building (see WSP 882). National Geodetic Vertical Datum of 1929 is at 2,047.00 ft (623.92 m) gage datum. Jan. 1, 1913, to Nov. 21, 1920, nonrecording gage and Nov. 22, 1920, to Sept. 15, 1934, recording gage 0.6 mi (1.0 km) upstream. From Sept. 16, 1934, to Nov. 15, 1949, recording gage 0.8 mi (1.3 km) upstream. From Nov. 16, 1949, at present site. Datum of all gages prior to Sept. 30, 1964, 50 ft (15.2 m) lower.

REMARKS.--Records good. Rathdrum Prairie Canal (see sta 12418000) diverts water above gage for irrigation. Figures of daily discharge do not include water diverted by this canal. Flow regulated by dam at Post Falls and affected by storage in Coeur d'Alene Lake (see sta 12415500).

AVERAGE DISCHARGE.--River only, 67 years, 6,289 ft³/s (178 m³/s), 4,556,000 acre-ft/yr (5,618 hm³/yr); combined river and diversions above gage, 67 years, 6,376 ft³/s (181 m³/s), 4,619,000 acre-ft/yr (5,695 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,100 ft³/s (1,419 m³/s) when recorder was not operating Dec. 25, 1933 (determined from unpublished records collected by Washington Water Power Co. for station at Liberty Bridge); minimum, 65 ft³/s (1.84 m³/s) July 23, 30, 1973; minimum gage height, 4.64 ft (1.426 m) July 20, 21, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 30,600 ft³/s (867 m³/s) May 9, gage height, 21.43 ft (6.532 m); minimum, 240 ft³/s (6.80 m³/s) Aug. 20, gage height, 5.38 ft (1.640 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1730	1790	1510	1530	1450	4190	10100	10000	15500	2750	591	1400
2	1750	1790	1540	1540	1450	4200	9900	10200	14700	2910	603	1600
3	1750	1790	1540	1540	1410	4200	9400	20300	13700	2070	603	1720
4	1750	1900	1530	1540	1340	4200	9100	21100	13100	2320	591	1700
5	1750	1790	1530	1500	1390	4210	8700	22200	12600	1960	603	1720
6	1760	1790	1540	1570	1320	4450	8400	24500	12200	2090	615	1720
7	1750	1770	1530	1500	1310	5140	8300	27400	11400	2210	620	1710
8	1750	1800	1530	1500	1310	6420	8450	29500	11000	2030	620	1720
9	1750	1800	1530	1500	1270	7620	8840	30100	5320	1710	635	1730
10	1740	1590	1550	1600	1260	8220	9360	29500	2150	1410	635	1710
11	1750	1610	1560	1600	1320	8400	9920	28300	2140	1540	622	1730
12	1740	1600	1530	1620	1540	8470	10300	27100	2130	1720	622	1730
13	1740	1520	1510	1620	1840	8520	10600	25900	2550	1710	622	1730
14	1750	1460	1530	1620	2440	8790	10750	24800	2820	1530	622	1720
15	1750	1460	1540	1620	3110	8930	10800	24000	2590	1350	622	1730
16	1760	1460	1550	1630	3400	9090	10800	23400	2500	1190	620	1730
17	1770	1450	1550	1670	3430	9400	10800	23100	3360	1190	622	1400
18	1770	1450	1550	1680	3560	9680	11300	22700	4250	1200	622	1320
19	1760	1440	1540	1680	3560	10000	12000	22200	3240	1200	510	1320
20	1770	1460	1550	1660	3100	10100	13100	21500	4530	1210	250	1310
21	1770	1470	1540	1530	3210	10300	13300	20800	4470	1210	542	1320
22	1770	1470	1530	1490	3340	10200	13100	20100	3400	1210	753	1320
23	1780	1470	1510	1490	3500	10300	13000	19700	3660	1020	760	1310
24	1780	1470	1520	1520	3690	10200	13100	19500	3620	746	746	1310
25	1780	1470	1530	1530	3620	10100	13200	19400	3080	717	739	1320
26	1780	1470	1510	1530	3630	10200	13500	19300	2750	603	739	1320
27	1770	1470	1520	1530	3870	10300	13000	19000	2750	615	731	1330
28	1780	1470	1530	1530	4150	10500	14300	18600	2750	603	1050	1330
29	1770	1470	1530	1540	---	10600	15400	18100	2740	591	1400	1330
30	1400	1470	1530	1410	---	10600	10800	17400	2760	597	1410	1320
31	1780	---	1540	1300	---	10400	---	16600	---	597	1400	---
TOTAL	54200	47200	47500	48520	69800	257930	340270	693300	173840	44050	22160	45740
MEAN	1751	1573	1534	1565	2493	8320	11340	22360	5795	1441	715	1525
MAX	1780	1800	1560	1600	4150	10600	10800	30100	15500	2910	1410	1730
MIN	1400	1440	1510	1360	1270	4190	8300	16600	2130	591	250	1310
AC-FT	107700	93620	94320	96240	138400	511600	674900	1375000	344800	80500	43950	90730
CAL YR 1978 TOTAL	2096036			MEAN 5743	MAX 22100	MIN 702	AC-FT 4157000					
WTR YR 1979 TOTAL	1945249			MEAN 5055	MAX 30100	MIN 458	AC-FT 3660000					

SPOKANE RIVER BASIN

65

12419000 SPOKANE RIVER NEAR POST FALLS, ID--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected 0.2 mi (0.3 km) upstream from gage.

PERIOD OF RECORD.--Water years 1973 to current year.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, AIR (DEG C)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT 1978										
16...	1130	1740	54	7.6	11.0	12.5	1	--	9.2	93
NOV										
13...	1200	1500	62	7.9	-2.0	6.0	0	--	11.2	96
DEC										
11...	1130	1630	59	6.1	4.5	3.5	1	--	11.2	91
JAN 1979										
15...	1130	1620	60	8.0	-5.0	1.0	1	--	12.2	93
FEB										
21...	1300	3340	56	6.2	1.5	2.0	2	--	12.9	101
MAR										
19...	1010	10100	65	7.3	11.5	3.5	1	--	11.4	93
APR										
16...	1045	10400	68	7.0	11.0	4.5	2	--	13.1	108
JUN										
05...	1130	12900	45	7.3	21.0	15.0	--	1.5	11.3	113
25...	1030	2700	48	7.0	19.0	18.0	--	1.0	9.0	102
JUL										
23...	1000	1240	52	7.5	22.0	24.0	--	1.5	7.4	94
AUG										
20...	1000	243	57	7.9	19.0	22.5	--	.70	7.6	86
SEP										
19...	1400	1360	56	7.0	30.0	20.0	--	.60	8.0	104

DATE	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL 0.7 UM-HF (COLS./ 100 ML)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LITY (MG/L AS CACO3)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG C SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)
OCT 1978										
16...	4	K8	24	0	26	1.0	6.7	36	50	.05
NOV										
13...	2	K7	27	0	22	.5	8.1	38	41	.05
DEC										
11...	--	K2	24	0	28	31	8.4	40	--	.05
JAN 1979										
15...	3	K3	22	0	18	.4	8.3	48	--	.05
FEB										
21...	10	<1	23	0	19	23	8.0	43	42	.06
MAR										
19...	6	K11	27	0	22	2.2	8.0	34	--	.05
APR										
16...	7	<1	24	0	28	3.8	6.9	37	--	.05
JUN										
05...	8	K10	20	0	16	1.6	7.5	30	13	.04
25...	4	K6	20	0	16	3.2	6.7	34	--	.05
JUL										
23...	4	K6	20	0	16	1.0	6.7	26	--	.04
AUG										
20...	7	K4	21	0	17	.4	.1	33	22	.04
SEP										
19...	8	K5	24	0	20	3.8	6.5	33	--	.04

SPOKANE RIVER BASIN

12419000 SPOKANE RIVER NEAR POST FALLS, ID--Continued

WATER QUALITY DATA

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)
OCT , 1978										
16...	169	.01	.00	1.5	1.5	1.5	6.7	.020	0	3
NOV										
13...	154	.02	.01	.20	.21	.23	1.0	.010	1	9
DEC										
11...	176	.04	.01	.26	--	.31	1.4	.040	2	5
JAN , 1979										
15...	175	.01	.02	2.3	2.3	2.3	10	.030	1	5
FEB										
21...	388	.01	.01	.07	.08	.09	.40	.020	1	4
MAR										
19...	927	.02	.02	.11	.13	.15	.66	.010	1	7
APR										
16...	1040	.01	.05	.09	.14	.15	.66	.010	4	2
JUN										
05...	1050	.02	.00	.04	.04	.06	.27	.020	2	1
25...	248	.01	.00	.04	.04	.05	.22	.090	1	1
JUL										
23...	87.0	.01	.01	.50	.51	.52	2.3	.020	2	2
AUG										
20...	21.7	.00	.02	.13	.15	.15	.66	.050	1	1
SEP										
19...	121	.00	.00	.29	.29	.29	1.3	.020	1	0

DATE	CHRO- MUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	OIL AND GREASE, TOTAL RECOV- ERABLE METRIC (MG/L)
OCT , 1978									
16...	0	9	90	21	.0	0	130	2.5	0
NOV									
13...	0	4	70	70	.1	0	120	1.6	0
DEC									
11...	0	6	70	390	.0	0	140	2.1	0
JAN , 1979									
15...	0	4	0	150	.0	0	160	1.4	0
FEB									
21...	0	5	40	30	.0	0	190	1.5	0
MAR									
19...	10	6	50	31	.1	0	180	2.0	0
APR									
16...	0	6	140	21	.1	0	210	2.2	0
JUN									
05...	10	5	160	13	.0	1	110	2.7	0
25...	0	9	70	21	.0	0	100	1.8	0
JUL									
23...	10	31	60	16	.2	0	90	3.0	0
AUG									
20...	10	2	60	4	.1	0	60	2.6	0
SEP									
19...	0	2	50	3	.0	0	50	1.5	0

DATE	TIME	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT , 1978											
16...	1130	23	3	6.3	1.7	1.5	12	.1	.6	11	10
NOV											
13...	1200	25	3	7.0	1.8	1.7	13	.1	.6	8.6	.3
FEB , 1979											
21...	1300	28	9	7.8	2.0	1.7	12	.1	.6	10	.5
JUN											
05...	1130	0	0	--	--	--	--	--	--	4.9	.7
AUG											
20...	1000	19	2	5.5	1.3	1.7	16	.2	.8	12	.6

SPOKANE RIVER BASIN

67

12419500 SPOKANE RIVER ABOVE LIBERTY BRIDGE, NEAR OTIS ORCHARDS, WA

LOCATION.--Lat 47°40'56", long 117°05'05", in NW¼ sec. 11, T.25 N., R.45 E., Spokane County, Hydrologic Unit 17010305, on left bank 1.2 mi (1.9 km) upstream from Liberty Bridge, 1.8 mi (2.9 km) southeast of Otis Orchards, 3.3 mi (5.3 km) northeast of Greenacres, and at mile 93.9 (151.1 km).

DRAINAGE AREA.--3,880 mi² (10,050 km²), approximately.

PERIOD OF RECORD.--January 1929 to December 1936, March 1937, August 1937 to August 1941, October 1941 to October 1942, February to May 1943, August 1943 to November 1946, February to July 1947, September 1947 to February 1948; May to November 1948, March to November 1949, and April to September 1950 (monthly discharge only); October 1950 to current year. Chemical analyses July 1959 to September 1971, water temperatures December 1963 to September 1965.

GAGE.--Water-stage recorder. Datum of gage is 2,000 ft (609.6 m) National Geodetic Vertical Datum of 1929 (levels by Washington Water Power Co.).

REMARKS.--Records excellent. Flow partly regulated by dam at Post Falls, Idaho, 8.2 mi (13.2 km) upstream and affected by storage in Coeur d'Alene Lake. Rathdrum Prairie Canal, 12.7 mi (20.4 km) upstream, diverts water for irrigation of about 3,000 acres (12 km²) above station.

AVERAGE DISCHARGE.--43 years (water years 1930-36, 1938-40, 1942, 1944-46, 1951-79), 6,140 ft³/s (173.9 m³/s), 4,448,000 acre-ft/yr (5,480 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,100 ft³/s (1,420 m³/s) Dec. 25, 1933, gage height, 22.24 ft (6.779 m); minimum daily discharge, 38 ft³/s (1.08 m³/s) July 20, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 30,400 ft³/s (861 m³/s) May 9, gage height, 18.93 ft (5.770 m); minimum, 264 ft³/s (7.48 m³/s) Aug. 20, gage height, 8.11 ft (2.472 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1670	1780	1460	1690	1520	4190	9840	18200	15500	2720	590	1380
2	1680	1780	1500	1960	1360	4190	9340	19600	14600	2840	597	1380
3	1690	1780	1500	2350	1360	4200	9010	20700	13600	2840	604	1670
4	1680	1790	1480	2560	1420	4200	8570	21400	13000	2340	590	1670
5	1700	1780	1490	2030	1300	4210	8260	22400	12500	1990	597	1670
6	1710	1780	1490	2000	1320	4440	8100	24300	12100	2100	611	1670
7	1700	1760	1490	1890	1250	5040	8100	27200	11300	2250	625	1710
8	1690	1770	1490	2010	1270	6190	8320	29400	10900	2070	625	1720
9	1690	1690	1490	2560	1210	7380	8880	30000	5690	1830	632	1730
10	1680	1540	1500	2540	1210	7980	9400	29500	2160	1460	632	1720
11	1680	1570	1520	1930	1260	8160	9840	28400	2160	1610	618	1730
12	1680	1560	1490	1590	1470	8230	10100	27200	2140	1790	618	1740
13	1680	1500	1480	1580	1810	8280	10300	25900	2450	1780	618	1730
14	1700	1400	1480	1580	2360	8550	10400	24800	2770	1600	625	1730
15	1700	1400	1490	1590	3010	8690	10400	24100	2590	1390	611	1740
16	1710	1410	1500	1570	3310	8860	10300	23500	2410	1180	625	1730
17	1720	1400	1510	1620	3370	9180	10700	23200	3200	1190	611	1500
18	1720	1390	1510	1630	3490	9490	11300	22900	4330	1200	618	1260
19	1720	1380	1510	1510	3510	9910	11900	22400	3160	1200	576	1260
20	1730	1400	1500	1410	3030	10000	13000	21800	4430	1210	296	1250
21	1730	1420	1520	1410	3150	10200	13200	21200	4550	1200	478	1260
22	1730	1420	1500	1400	3260	10200	13100	20500	3450	1210	740	1260
23	1740	1420	1450	1430	3430	10200	13000	20100	3630	1070	760	1250
24	1740	1420	1470	1450	3650	10100	13000	19900	3610	730	760	1250
25	1740	1420	1480	1520	3580	10100	13100	19800	3110	723	760	1260
26	1740	1420	1470	1580	3600	10200	13300	19600	2730	604	760	1260
27	1740	1420	1470	1480	3820	10200	13600	19300	2720	611	760	1270
28	1740	1430	1480	1520	4130	10400	14100	19000	2720	604	760	1260
29	1740	1420	1470	1580	---	10500	15300	18400	2700	583	1300	1270
30	1450	1430	1470	1310	---	10400	16900	17600	2730	597	1380	1260
31	1770	---	1500	1450	---	10200	---	16700	---	597	1380	---
TOTAL	52790	46080	46160	53670	68460	254070	334660	699000	172940	45119	21757	44590
MEAN	1703	1536	1489	1731	2445	8196	11160	22550	5765	1455	702	1486
MAX	1770	1790	1520	2560	4130	10500	16900	30000	15500	2840	1380	1740
MIN	1450	1380	1450	1310	1210	4190	8100	16700	2140	583	296	1250
AC-FT	104700	91400	91560	106500	135800	503900	663800	1386000	343000	89490	43150	88440
CAL YR 1978 TOTAL	2077565			MEAN 5692	MAX 21800	MIN 600	AC-FT 4121000					
WTR YR 1979 TOTAL	1839296			MEAN 5039	MAX 30000	MIN 296	AC-FT 3648000					

LOCATION.--Lat 47°45'52", long 117°05'47", in NE¼SE¼ sec.10, T.26 N., R.45 E., Spokane County, Hydrologic Unit 17010305, on southwest shore 3.0 mi (4.8 km) northwest of town of Newman Lake.

PERIOD OF RECORD.--September 1958 to March 1968 (fragmentary); April 1968 to January 1970; February 1970 to current year (fragmentary). Chemical analyses October 1970 to September 1971.

GAGE.--Nonrecording gage. Altitude of gage is 2,120 ft (646 m), from topographic map. Apr. 4, 1968 to Jan. 27, 1970, water-stage recorder at site 0.7 mi (1.1 km) northeast across lake at same datum.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 11.62 ft (3.542 m) Jan. 29, 1974; minimum observed, 7.08 ft (2.158 m) Oct. 25, Nov. 2, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 11.30 ft (3.444 m) Mar. 28; minimum observed, 7.82 ft (2.384 m) Dec. 23.

[illegible]

SPOKANE RIVER BASIN

66

12420000 LIBERTY LAKE AT LIBERTY LAKE, WA

LOCATION.--Lat 47°35'09", long 117°05'20", in NW sec.22, T.25 N., R.45 E., Spokane County, Hydrologic Unit 17010305, on right wall of concrete outlet flume at town of Liberty Lake, 15 mi (24.1 km) east of Spokane.

DRAINAGE AREA.--13.3 mi² (34.4 km²).

PERIOD OF RECORD.--December 1959 to December 1955 (fragmentary), January 1956 to current year. Chemical analyses October 1970 to September 1971.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1959, published at datum 2,046.48 ft (623.707 m) higher.

REMARKS.--Stage controlled by gates at outlet. Observer readings of Nov. 15 through Feb. 16 were taken to top of ice. Some pumping from lake for domestic use.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 2,051.81 ft (625.392 m), from high-water mark, occurred during period Jan. 19 to Feb. 5, 1974; minimum observed, 2,045.56 ft (623.487 m) Nov. 11, 15, 1977.

EXTREMES FOR CURRENT YEAR: Maximum elevation observed, 2,049.74 ft (624.761 m), Apr. 30; minimum observed, 2,047.10 ft (623.956 m) Sept. 29.

ELEVATION, IN FEET WOOD, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				*2047.72			2049.38			2048.90		
2	2047.72				*2047.62	2048.35					2048.00	
3		2047.52										
4										2049.36		
5				*2047.72	*2047.86	2048.54	2049.32	2049.70				
6	2047.60	2047.52								2048.80		2047.58
7			*2047.70			2048.63		2049.70				
8				*2047.74		2048.62			2049.30			
9	2047.66				2047.56		2049.36			2048.70		
10		2047.50		2047.56		2048.80					2047.88	
11								2049.68	2049.20			
12	2047.62				*2047.88	2048.90						2047.68
13		*2047.56					2049.05			2048.68		
14		2047.33						2049.64				
15				*2047.74		2048.90			2049.10		2047.72	
16	2047.60				2047.90		2049.48			2048.50		
17		*2047.58										
18			*2047.70					2049.42	2049.10			2047.36
19				*2047.74	2048.80							
20	2047.60	*2047.60					2049.50	2049.40		2048.70	2047.68	
21												
22												2047.38
23	2047.56				2048.15	2049.14	2049.60	2049.50	2049.00			
24		*2047.60		*2047.70	2048.04						2047.62	2047.28
25			*2047.70									
26					2048.20				2049.88			
27	2047.58					2049.75	2049.70	2049.05		2048.10	2047.58	
28												
29		*2047.68										2047.18
30	2047.54			*2047.60			2049.74			2048.00	2047.54	
31				2047.70				2049.40				
NOV												
NOV												
NOV												

* Readings were taken to top of ice.

22422500 SPOKANE RIVER AT SPOKANE, WA

LOCATION.--Lat 47°39'54", long 117°26'53", in SW1/4 sec.13, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010305, on right bank at Cochran Street in Spokane, 0.5 mi (0.8 km) upstream from Hangman Creek, and at mile 72.9 (117.5 km).

DRAINAGE AREA.--4,290 mi² (11,100 km²), approximately.

PERIOD OF RECORD.--April 1891 to current year. Chemical analyses October 1972 to September 1973.

REVISED RECORDS.--WSP 532: 1891-1904. WSP 1246: Drainage area. WSP 1286: 1907-9.

GAGE.--Water-stage recorder. Datum of gage is 1,096.6 ft (517.12 m) National Geodetic Vertical Datum of 1929 (river-profile survey). Prior to July 1, 1921, water-stage recorders and nonrecording gages at several sites within 4 mi (6 km) of present site at various datums.

REMARKS.--Records excellent. Flow partly regulated by powerplants of Washington Water Power Co. at Post Falls, Idaho, 28.6 mi (46.3 km) upstream and at Spokane, 1.3 mi (2.1 km) upstream, and by Coeur d'Alene Lake, Idaho, Rathdrum Prairie Canal diverts water above station for irrigation. In 1946, approximately 22,600 acres (91 km²), of which about 15,000 acres (61 km²) utilized surface water, were under irrigation upstream from Spokane. Since 1906 irrigation has been from many wells in the valley near the river with only about 3,000 acres (12 km²) irrigated from the river.

AVERAGE DISCHARGE.--88 years, 6,871 ft³/s (194.6 m³/s) 4,978,000 acre-ft/yr (6.140 km³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,000 ft³/s (1,390 m³/s), estimated, May 31, 1894 (see WSP 532); minimum, 95 ft³/s (2.69 m³/s) Sept. 19, 1956, gage height, 15.60 ft (4.755 m); minimum daily, 466 ft³/s (13.2 m³/s) Aug. 11, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 31,200 ft³/s (884 m³/s) May 9, gage height, 26.70 ft (8.138 m); minimum, 441 ft³/s (12.5 m³/s) Aug. 20, gage height, 16.32 ft (5.035 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2030	2140	1800	1900	1830	4100	18200	10300	16300	3100	967	1510
2	2040	2150	1920	1770	1840	4220	9600	19600	15400	3210	976	1600
3	2060	2160	1930	1870	1750	4220	9300	20900	14500	3300	976	1610
4	2080	2160	1960	1840	1740	4240	8800	21600	13600	3430	1020	1650
5	2080	2150	1900	1900	1720	4260	8500	22700	13100	2440	905	1650
6	2060	2200	1900	1900	1700	4300	6300	24400	12600	2460	961	1690
7	2070	2140	1900	2010	1600	4090	6330	27300	11800	2660	1030	1600
8	2070	2170	1900	1970	1600	5000	6500	29700	11300	2490	995	1630
9	2070	2170	1900	1930	1600	7030	9000	30700	7950	2390	997	1690
10	2040	1940	1930	1970	1670	7020	9400	30400	2430	1940	967	1930
11	2070	2030	1930	1960	1710	8000	9920	29400	3100	1990	990	1600
12	2070	2000	1920	1990	1890	8100	10200	26300	3100	2170	905	1930
13	2030	1970	1870	1970	2130	8300	10400	27000	3140	2160	966	1920
14	2040	1890	1900	1990	2440	8520	10500	25900	2400	2000	1010	1920
15	2100	1870	1900	1990	3000	8720	10500	25300	2470	1870	969	1800
16	2100	1870	1900	2000	3320	8860	10500	24400	2000	1600	907	1910
17	2100	1870	1930	1970	3650	9150	10800	24000	2540	1670	990	1800
18	2100	1870	1930	2010	3600	9400	11400	23000	4910	1600	970	1560
19	2110	1850	1890	1990	3500	9620	12100	23300	2630	1620	971	1570
20	2100	1850	1930	1830	3190	9950	13200	22700	6400	1600	831	1570
21	2110	1800	1920	1840	3250	10200	13600	22000	5150	1500	752	1570
22	2070	1800	1930	1830	3300	10200	13500	21400	3800	1500	1020	1540
23	2150	1870	1840	1800	3560	10200	13300	20900	4010	1540	1070	1540
24	2130	1870	1900	1850	3640	10100	13400	20600	4010	1200	1070	1540
25	2100	1870	1890	1900	3700	10100	13500	20400	2710	1210	1070	1550
26	2110	1870	1800	1890	3720	10200	13600	20200	3250	1090	1000	1560
27	2140	1850	1800	1890	3620	10300	14000	19900	3700	1000	1050	1500
28	2110	1890	1970	1800	4100	10400	14600	19000	2170	1000	1120	1540
29	2140	1850	1890	1900	---	10600	15700	19100	3130	1000	1500	1590
30	2100	1870	1830	1720	---	10500	17000	18300	3120	1050	1530	1550
31	1970	---	1870	1700	---	10300	---	17500	---	1010	1500	---
TOTAL	64530	59190	50960	59120	74690	253320	361900	719300	192500	59200	32303	51700
MEAN	2082	1973	1662	1907	2408	8172	11400	23200	6419	1910	1045	1723
MAX	2150	2200	1970	2010	4100	10600	17800	30700	16300	3300	1560	1930
MIN	1970	1850	1830	1700	1670	4100	8330	17500	2000	1010	752	1510
AC-FT	120000	117000	110900	117300	160100	502500	670300	1427000	302000	117400	64250	102400
CAL. FR 1970 TOTAL	2216230	MEAN	6077	MAX	22300	MIN	1010	AC-FT	4400000			
FR 1979 TOTAL	1906903	MEAN	5369	MAX	10700	MIN	752	AC-FT	1901200			

SPOKANE RIVER BASIN

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11424000 HANSMAN CREEK AT SPOKANE, WA

LOCATION.--Lat 47°59'10", long 117°26'55", in NW 1/4 sec. 24, T. 25 N., R. 42 E., Spokane County, Hydrologic Unit 17010306, on left bank 0.5 mi (0.5 km) downstream from bridge on Interstate 90 in Spokane and at mile 0.6 (1.3 km).

DRAINAGE AREA.--689 mi² (1,785 km²).

PERIOD OF RECORD.--April 1948 to September 1977. October 1977 to September 1978 (discharges above 20 ft³/s (0.57 m³/s) only) October 1978 to current year. Prior to October 1958, published as Latah Creek at Spokane.

REVISED RECORDS.--NSP 1933: Drainage area. NSP 2133: 1965(P).

GAGE.--Water-stage recorder. Altitude of gage is 1,717.42 ft (523.470 m), National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Nov. 22, 1948, nonrecording gage at site 0.5 mi (0.8 km) upstream at different datum.

REMARKS.--Records fair. No regulation. Some diversions for irrigation above station.

AVERAGE DISCHARGE.--30 years, (water years 1949-77, 1979), 250 ft³/s (7,060 m³/s), 4.93 in/yr (125 mm/yr), 181,100 acre-ft/yr (223 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 ft³/s (583 m³/s) Feb. 3, 1963, gage height, 15.55 ft (4.699 m); minimum, 1.8 ft³/s (0.040 m³/s) Sept. 8, 7, 9, 10, 14-17, 1975, gage height, 1.47 ft (0.448 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (70.8 m³/s) and maximum ("):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 13	1300	*10,400 295	*10.66 3.249	Mar. 5	2230	3,900 110	7.01 2.143
Feb. 20	2300	5,220 148	8.53 2.539				

Minimum discharge, 5.7 ft³/s (0.16 m³/s) Sept. 12, 14, gage height, 1.49 ft (0.454 m).

DISCHARGE IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	21	33	21	23	1100	292	262	62	19	7.6	7.7
2	16	22	32	22	23	774	264	190	30	16	7.0	6.1
3	16	23	34	22	23	500	264	191	36	16	7.0	10
4	16	24	32	23	22	872	229	164	34	15	7.0	6.0
5	16	24	31	23	22	3100	212	150	33	14	6.7	6.1
6	16	23	30	22	35	3200	240	700	32	13	6.7	6.4
7	16	23	29	22	70	3320	276	620	30	13	6.4	6.0
8	16	26	30	23	190	2370	370	435	29	12	6.4	6.0
9	16	26	32	23	300	1140	330	365	29	12	6.7	7.7
10	16	21	34	24	650	850	350	300	29	12	6.7	7.0
11	16	29	30	24	1440	712	325	240	30	12	6.7	6.4
12	16	19	35	25	2700	670	292	210	25	12	6.7	6.0
13	16	10	33	25	8500	616	272	177	24	12	6.4	6.4
14	16	17	35	25	3900	550	280	155	23	12	9.2	6.0
15	16	16	34	25	1200	500	264	140	22	12	7.7	6.0
16	16	10	34	25	1100	794	222	127	22	11	6.1	6.0
17	16	21	34	25	1000	1200	224	112	26	11	6.1	6.0
18	16	20	34	25	1000	800	365	140	25	11	6.1	6.0
19	16	20	34	25	950	542	304	80	20	10	6.1	6.4
20	16	19	32	25	950	470	260	83	27	9.6	6.1	6.7
21	16	21	31	26	950	610	219	75	26	6.5	6.1	6.7
22	16	22	32	26	950	360	194	65	26	6.4	6.4	7.0
23	16	24	32	25	1000	360	184	65	26	6.4	6.4	7.0
24	16	29	32	25	1450	260	265	64	25	7.7	7.7	7.0
25	16	20	31	25	1620	260	264	65	23	7.7	7.6	6.7
26	16	27	35	26	2640	292	240	61	21	6.1	7.4	6.7
27	16	27	30	26	3000	290	222	57	19	6.4	7.4	6.1
28	16	28	27	24	1700	330	205	54	16	6.1	7.0	7.0
29	17	26	25	24	---	400	194	51	15	6.1	7.4	7.0
30	16	29	23	23	---	615	194	50	15	7.7	7.4	---
31	16	---	21	23	---	340	---	46	---	7.4	7.7	---
TOTAL	670	672	974	743	3070	2619	7050	5430	790	267.6	229.1	216.2
MEAN	15.4	22.4	31.4	26.0	130.0	94.0	235	175	26.0	11.2	7.30	7.21
MAX	20	29	30	26	8550	3300	370	700	62	19	9.2	10
MIN	14	16	21	21	22	200	184	46	15	7.4	6.4	6.0
AC-FT	944	1310	1730	1470	7090	5560	15190	10790	1500	600	650	620

OTM YR 1979 TOTAL 64316.7 MEAN 232 MAX 8550 MIN 6.0 AC-FT 147000

SPOKANE RIVER BASIN

12414005 HANGMAN CREEK AT MOUTH AT SPOKANE, WA

LOCATION.--Lat 47°39'15", Long 115°27'12", on west line of NW¼ sec.24, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010500, at bridge on Riverside Avenue at west edge of Spokane and 0.6 mi (1.0 km) upstream from mouth.

DRAINAGE AREA.--689 sq mi (1,785 km²), approximately.

PERIOD OF RECORD.--Water years 1973, 1977 to current year.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW (CFS)	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	DIOX- YGEN (PLAT- INUM COBALT UNITS)
OCT x 1978							
10...	1310	14	--	310	7.9	11.8	15
NOV							
07...	1500	--	24	305	8.0	--	5
DEC							
13...	1500	33	--	310	7.8	.4	10
NOV x 1979							
07...	0845	--	3100	130	7.3	9.0	15
APR							
11...	0930	--	320	115	7.6	6.2	5
MAY							
11...	0845	--	256	150	7.1	9.5	10
JUN							
20...	1000	--	30	335	7.7	14.4	15
JUL							
11...	1015	--	13	400	7.9	10.8	5
AUG							
10...	1000	--	6.7	370	8.0	17.0	20
SEP							
12...	0930	--	6.0	395	8.0	12.8	20

DATE	TUR- BID- ITY (NTU)	DATGEN- DIS- SOLVED (MG/L)	NITRO- GEN- NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN- AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS- TOTAL (MG/L AS P)	PHOS- PHORUS- ORTHOPHOS- DIS- SOLVED (MG/L AS P)	PHOS- PHATE- ORTHOPHOS- DIS- SOLVED (MG/L AS PO4)
OCT x 1978							
10...	40	10.3	.00	.00	.070	.01	.03
NOV							
07...	2.0	11.8	.59	.01	.110	.08	.25
DEC							
13...	10	13.3	1.2	.02	.150	.09	.20
NOV x 1979							
07...	00	12.4	5.4	.23	.230	.09	.20
APR							
11...	56	10.9	.56	.01	.140	.09	.20
MAY							
11...	00	10.0	.50	.01	.110	.05	.15
JUN							
20...	7.0	8.0	.03	.08	.100	.02	.06
JUL							
11...	33	9.0	.05	.07	.030	.08	.00
AUG							
10...	15	9.0	1.5	.01	.020	.01	.03
SEP							
12...	10	9.8	1.5	.11	.010	.01	.03

SPOKANE RIVER BASIN

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12424200 SPOKANE RIVER AT RIVERSIDE STATE PARK, AT SPOKANE, WA
(National Water Quality Surveillance System)

LOCATION.--Lat 47°41'48", long 117°29'48", in SEENEY sec.4, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010307, at Riverside State Park on west edge of Spokane, and at mile 66.1 (106.4 km).

DRAINAGE AREA.--5,010 mi² (12,980 km²), approximately.

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN- DIS- SOLVED (MG/L)	OXYGEN DEMAND- CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM- FECAL- 0.7 UM-10 (COLS./ 100 ML)	HARD- NESS (MG/L AS CaCO3)	HARD- NESS- NONCAR- BONATE (MG/L CaCO3)
OCT + 1978											
10...	1200	2220	140	8.2	11.6	.30	10.5	--	2	60	8
NOV											
21...	1130	2020	149	8.0	4.4	.50	12.0	6	25	64	5
DEC											
18...	1045	2000	136	7.9	4.1	.40	11.7	12	6	61	13
JAN + 1979											
17...	1300	2100	138	7.8	2.4	1.0	12.7	1	9	61	10
FEB											
21...	1320	4360	125	7.8	3.2	14	12.2	24	855	56	17
MAR											
22...	1200	10600	69	7.8	5.1	4.7	13.7	--	120	30	6
APR											
25...	1050	13000	75	7.8	6.7	1.0	13.2	13	87	32	--
MAY											
16...	1110	24700	56	7.8	11.3	4.5	12.2	10	40	24	3
JUN											
12...	1155	3100	156	8.2	16.0	.70	9.6	3	20	73	13
JUL											
26...	1345	1070	214	8.0	19.0	1.1	9.0	5	<1	80	7
AUG											
20...	1130	704	205	8.3	17.4	.40	8.2	8	1500	87	5
SEP											
18...	1245	1630	150	8.3	16.0	1.0	9.5	11	21	63	13

DATE	CALCIUM TOTAL RECOV- ERABLE (MG/L AS Ca)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM- TOTAL RECOV- ERABLE (MG/L AS Mg)	MAGNE- SIUM- DIS- SOLVED (MG/L AS Mg)	MAGNE- SIUM- DIS- SOLVED (MG/L AS Mg)	SODIUM- TOTAL RECOV- ERABLE (MG/L AS Na)	SODIUM- DIS- SOLVED (MG/L AS Na)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM- DIS- SOLVED (MG/L AS Na)	POTAS- SIUM- TOTAL RECOV- ERABLE (MG/L AS K)
OCT + 1978											
10...	--	15	--	--	5.5	--	3.7	12	.2	--	--
NOV											
21...	--	16	--	--	5.0	--	3.7	11	.2	--	--
DEC											
18...	16	15	5.8	.0	5.8	3.7	3.0	11	.2	--	1.3
JAN + 1979											
17...	--	15	--	--	5.7	--	4.1	13	.2	--	--
FEB											
21...	--	15	--	--	4.4	--	3.0	10	.2	--	--
MAR											
22...	9.0	6.2	2.4	.0	2.4	2.0	2.3	14	.2	--	.0
APR											
25...	--	8.4	--	--	2.6	--	2.1	12	.2	3.0	--
MAY											
16...	--	4.0	--	--	1.0	--	2.0	15	.2	2.7	--
JUN											
12...	16	16	6.0	.0	6.7	3.0	3.1	8	.2	4.5	1.2
JUL											
26...	--	21	--	--	0.6	--	5.2	11	.2	6.9	--
AUG											
20...	--	21	--	--	0.5	--	4.5	10	.2	6.4	--
SEP											
18...	14	16	6.2	.6	5.6	14	4.5	13	.2	11	1.5

SPOKANE RIVER BASIN

12424200 SPOKANE RIVER AT RIVERSIDE STATE PARK, AT SPOKANE, WA--Continued

WATER QUALITY DATA

DATE	POTAS- SIUM- DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE- DIS- SOLVED (MG/L AS CL)	SILICA- DIS- SOLVED (MG/L AS SiO2)	SOLIDS- RESIDUE AT 100 DEG. C DIS- SOLVED (MG/L)	SOLIDS- SUM OF CONSTI- TUENTS- DIS- SOLVED (MG/L)
OCT - 1978										
10...	1.3	64	0	53	.6	13	3.2	0.3	88	88
NOV										
21...	1.4	72	0	54	1.2	13	3.8	0.6	94	88
DEC										
18...	1.5	59	0	48	1.2	11	2.5	0.8	81	90
JAN - 1979										
17...	1.1	62	0	51	1.6	12	4.2	0.2	88	82
FEB										
21...	1.5	47	0	39	1.2	12	2.4	11	82	73
MAR										
22...	.8	30	0	25	.8	7.8	1.2	0.2	51	46
APR										
25...	.9	--	0	19	--	12	.9	0.3	49	--
MAY										
18...	.7	26	0	21	.7	6.0	.8	7.9	48	39
JUN										
12...	1.4	73	0	60	.7	11	3.0	0.4	88	88
JUL										
26...	1.7	98	0	80	1.6	17	6.1	0.2	120	117
AUG										
20...	1.9	100	0	82	.8	16	4.1	.6	--	108
SEP										
18...	1.3	--	--	50	--	17	4.0	7.9	88	88

DATE	SOLIDS- DIS- SOLVED (TONS PER AC-FT)	SOLIDS- DIS- SOLVED (TONS PER DAY)	SOLIDS- RESIDUE AT 105 DEG. C SUS- PENDEU (MG/L)	SOLIDS- SUSP. TOTAL RESIDUE AT 118 DEG. C (MG/L)	NITRO- GEN- NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN- AMMONIA TOTAL (MG/L AS N)	NITRO- GEN- ORGANIC TOTAL (MG/L AS N)	NITRO- GEN-AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN- TOTAL (MG/L AS N)	NITRO- GEN- TOTAL (MG/L AS NO3)
OCT - 1978										
18...	.12	527	--	2	.50	.01	.23	.24	.74	3.3
NOV										
21...	.13	513	--	0	.68	.34	.14	.48	1.2	5.1
DEC										
18...	.11	455	--	27	.57	.08	.17	.17	.74	3.3
JAN - 1979										
17...	.11	454	--	5	.35	.36	.08	.33	.68	3.0
FEB										
21...	.11	965	--	80	1.2	.28	.45	.65	1.9	8.2
MAR										
22...	.07	1468	--	10	.15	.07	.19	.26	.41	1.8
APR										
25...	.07	1838	--	7	.05	.01	.21	.22	.27	1.2
MAY										
18...	.05	2678	--	8	.63	.08	.25	.25	.28	1.2
JUN										
12...	.12	756	--	8	.57	.02	.29	.31	.88	3.9
JUL										
26...	.16	347	6	4	.05	.03	.94	.97	1.6	8.1
AUG										
20...	.54	836	--	0	.92	.08	.65	.65	1.6	7.0
SEP										
18...	.12	387	6	--	.79	.20	.17	.37	1.2	5.1

SPOKANE RIVER BASIN

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11424200 SPOKANE RIVER AT RIVERSIDE STATE PARK, AT SPOKANE, WA--Continued

WATER QUALITY DATA

DATE	PHOS- TOTAL (MG/L AS P)	PHOS- ORTHOS- DIS- SOLVED (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM TOTAL RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM DIS- SOLVED (UG/L AS CR)	COPPER TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER DIS- SOLVED (UG/L AS CU)
OCT * 1978										
18...	.050	.01	--	1	20	--	--	0	--	0
NOV										
21...	.040	.01	--	1	20	--	--	0	--	4
DEC										
18...	.010	.01	1	--	--	1	0	--	9	--
JAN * 1979										
17...	.040	.01	--	2	20	--	--	0	--	4
FEB										
21...	.050	.04	--	1	0	--	--	10	--	3
MAR										
22...	.010	.01	2	--	--	1	0	--	25	--
APR										
25...	.020	.01	--	1	20	--	--	0	--	2
MAY										
16...	.010	.00	--	1	0	--	--	0	--	0
JUN										
12...	.020	.00	4	--	--	1	10	--	21	--
JUL										
20...	.030	.04	--	2	20	--	--	4	--	4
AUG										
20...	.030	.03	--	2	20	--	--	0	--	2
SEP										
18...	.030	.05	2	--	--	1	10	--	5	--

DATE	IRON TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD DIS- SOLVED (UG/L AS PB)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM TOTAL RECOV- ERABLE (UG/L AS SE)	SELE- NIUM DIS- SOLVED (UG/L AS SE)	SILVER DIS- SOLVED (UG/L AS AG)	ZINC TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC DIS- SOLVED (UG/L AS ZN)	CARBON ORGANIC TOTAL (MG/L AS C)
OCT * 1978										
18...	--	--	5	.0	--	0	0	--	00	1.0
NOV										
21...	--	--	5	.0	--	0	0	--	00	2.4
DEC										
18...	30	13	--	.0	0	--	--	100	--	1.3
JAN * 1979										
17...	--	--	2	.0	--	0	0	--	100	1.3
FEB										
21...	--	--	1	.1	--	0	0	--	00	3.2
MAR										
22...	400	22	--	.0	0	--	--	100	--	2.4
APR										
25...	--	--	0	.2	--	0	0	--	100	3.0
MAY										
16...	--	--	2	.1	--	0	0	--	10	2.3
JUN										
12...	00	23	--	.0	0	--	--	100	--	2.6
JUL										
20...	--	--	1	.0	--	0	0	--	30	1.0
AUG										
20...	--	--	4	.4	--	0	0	--	0	2.4
SEP										
18...	60	10	--	.2	0	--	--	40	--	1.1

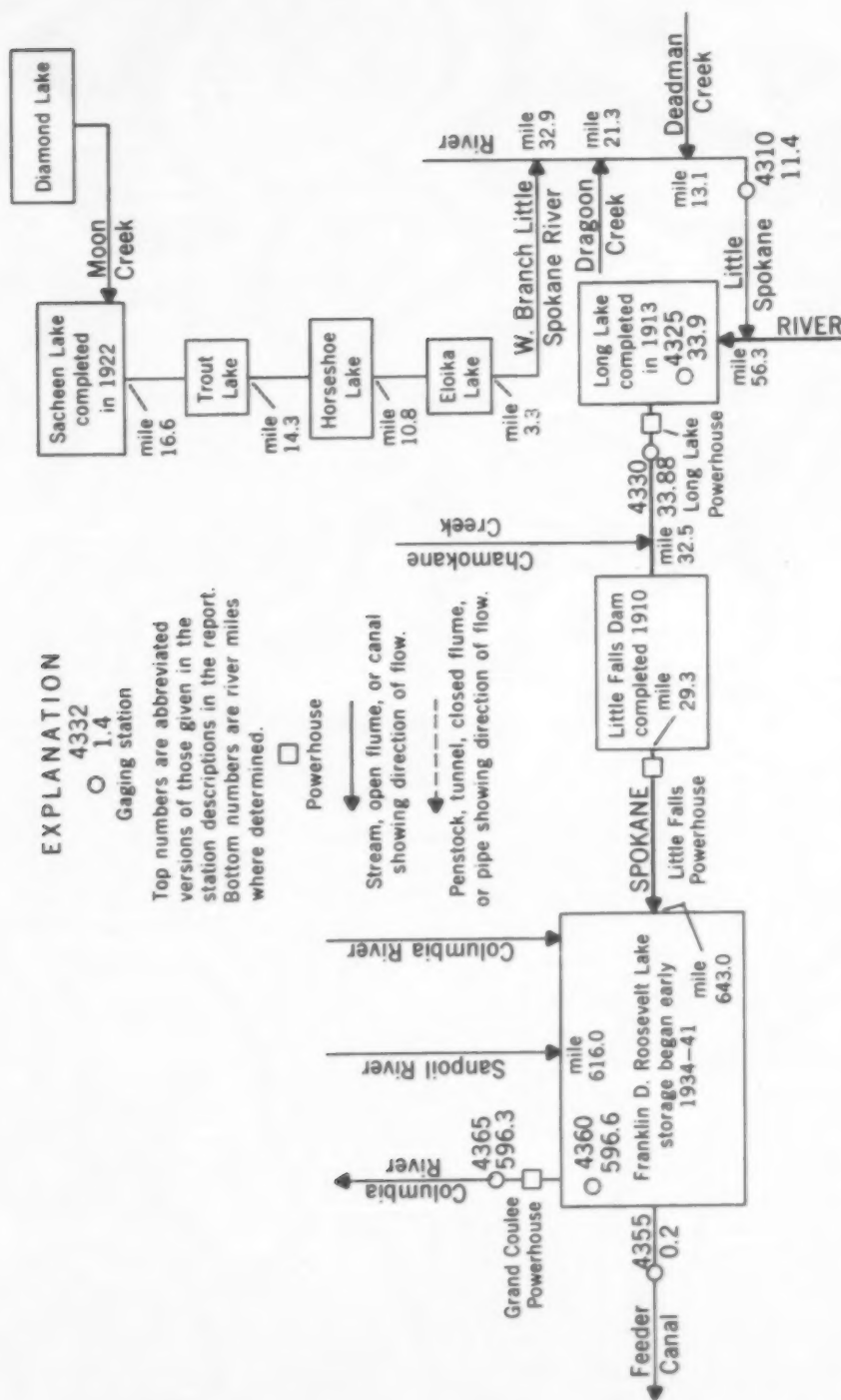


Figure 9. Gaging stations in Spokane River basin from Little Spokane River downstream and at Grand Coulee Dam.

SPOKANE RIVER BASIN

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12431000 LITTLE SPOKANE RIVER AT DARTFORD, WA

LOCATION.--Lat 47°47'05", long 117°24'12", in NE¼NW¼ sec.5, T.26 N., R.43 E., Spokane County, Hydrologic Unit 17010308, on left bank 50 ft (15 m) upstream from county bridge, 0.5 mi (0.8 km) east of Dartford, 1.7 mi (2.7 km) downstream from Deadman Creek, 7.5 mi (12.1 km) north of Spokane, and at mile 11.4 (18.3 km).

DRAINAGE AREA.--665 mi² (1,722 km²).

PERIOD OF RECORD.--April 1929 to September 1932, December 1946 to current year, chemical analyses July 1960 to September 1970, water temperatures July 1960 to September 1970.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1280: 1930, 1932(M), 1947-49(M). WSP 1446: 1951(M).

GAGE.--Water-stage recorder. Altitude of gage is 1,590 ft (485 m), from topographic map. Prior to Mar. 16, 1951, nonrecording gage and Mar. 16, 1951, to July 5, 1961, water-stage recorder, at site 0.5 mi (0.8 km) downstream at different datum.

REMARKS.--Records excellent except those for Dec. 25 to Feb. 8, which are fair. No regulation. Small diversions for irrigation above station.

AVERAGE DISCHARGE.--35 years (water years 1930-52, 1948-79), 312 ft³/s (8.836 m³/s), 0.37 in/yr (162 mm/yr), 226,000 acre-ft/yr (279 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,170 ft³/s (89.6 m³/s) Feb. 17, 1970, gage height, 7.29 ft (2.222 m); minimum observed, 63 ft³/s (1.78 m³/s) July 24, 1930, gage height, 1.07 ft (0.326 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,040 ft³/s (29.5 m³/s) Feb. 26, gage height, 4.53 ft (1.381 m); minimum, 88 ft³/s (2.49 m³/s) Aug. 13; minimum gage height, 1.74 ft (0.530 m), Nov. 20 due to ice buildup above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	144	143	150	120	126	473	408	349	197	122	98	117
2	143	143	150	125	120	405	401	350	191	150	96	116
3	143	146	148	130	120	357	394	342	182	137	96	120
4	144	159	150	130	120	378	380	335	178	127	96	130
5	143	157	137	130	125	508	373	371	172	122	96	125
6	143	150	122	130	130	635	368	500	168	119	95	122
7	143	150	134	125	135	737	365	512	163	119	96	119
8	143	148	146	125	145	853	355	459	157	119	95	122
9	143	146	148	125	150	728	357	434	153	116	93	120
10	143	141	148	125	152	635	359	411	148	112	92	119
11	143	132	152	130	164	589	356	390	144	111	93	119
12	141	141	150	135	220	587	353	371	141	114	92	119
13	141	139	120	130	558	575	367	357	137	112	91	119
14	141	136	157	130	549	552	373	345	136	111	99	117
15	143	130	153	130	332	553	360	336	132	108	106	119
16	143	143	137	130	307	617	356	329	132	108	106	117
17	141	146	148	130	260	719	377	318	144	105	103	116
18	141	150	150	125	308	829	362	306	155	105	102	116
19	141	144	148	120	318	585	371	295	146	103	102	117
20	139	125	148	120	290	588	361	287	143	103	105	116
21	137	152	148	125	273	546	352	277	137	102	108	117
22	136	139	150	130	251	520	345	268	132	102	106	117
23	137	141	148	130	229	558	345	264	129	102	105	117
24	137	141	150	120	233	495	352	267	125	102	102	117
25	137	141	130	120	351	493	346	256	124	103	102	117
26	136	141	125	120	761	493	338	246	120	103	102	119
27	137	143	125	120	816	493	332	236	117	103	102	117
28	139	144	120	120	608	486	328	230	114	103	102	116
29	144	144	120	120	---	479	330	225	114	102	102	116
30	144	146	115	120	---	455	352	215	111	100	103	116
31	144	---	115	120	---	435	---	208	---	100	114	---
TOTAL	4374	4303	4362	3890	8149	17069	10036	10089	4362	3445	3100	3554
MEAN	141	143	140	125	261	551	361	325	145	111	100	118
MAX	144	159	157	145	816	853	408	512	197	158	114	130
MIN	136	125	115	120	120	357	328	208	111	100	91	116
CFSM	.21	.22	.21	.19	.44	.83	.54	.49	.22	.17	.15	.18
IN.	.24	.24	.24	.22	.46	.95	.61	.56	.24	.19	.17	.20
AC-FT	8680	8530	8610	7720	16100	33880	21490	20810	8610	6830	6150	7050
CAL YR 1978 TOTAL	91942	MEAN 292	MAX 884	MIN 115	CFSM .38	IN 5.14	AC-FT 182200					
4TH YR 1979 TOTAL	77493	MEAN 212	MAX 853	MIN 91	CFSM .32	IN 4.33	AC-FT 153700					

SPOKANE RIVER BASIN

12431900 LITTLE SPOKANE RIVER NEAR MOUTH, NEAR SPOKANE, WA

LOCATION.--Lat 47°47'00", long 117°31'44", in SE¼NW¼ sec.5, T.26 N., R.42 E., Spokane County, Hydrologic Unit 17010508, at Tumtum Road bridge, 5.3 mi (8.5 km) northwest of Spokane and at mile 1.1 (1.8 km).

DRAINAGE AREA.--700 mi² (1,813 km²).

PERIOD OF RECORD.--Water years 1971, 1973, 1977 to current year.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is fair.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW (CFS)	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM CORALY UNITS)	TUR- BID- ITY (NTU)	OXYGEN- DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)
OCT 1978										
10...	1415	--	406	310	7.7	10.9	15	15	10.9	130
NOV										
07...	1615	--	416	305	7.3	--	10	12	12.0	140
DEC										
13...	1545	--	379	350	7.7	4.4	0	19	12.7	130
JAN 1979										
11...	1030	390	--	315	7.8	3.1	10	25	12.1	140
FEB										
07...	1215	400	--	310	7.9	6.5	10	20	10.7	130
MAR										
07...	0930	--	1170	260	7.2	5.4	10	10	11.9	83
APR										
11...	1015	--	684	300	8.6	8.2	10	18	10.0	98
MAY										
11...	0915	--	728	230	7.6	11.2	5	18	9.8	96
JUN										
06...	1045	--	439	355	8.1	12.9	0	5.0	9.7	120
JUL										
11...	1115	--	365	300	8.0	14.7	10	10	9.7	130
AUG										
08...	1100	--	342	274	7.7	13.7	5	9.0	9.3	140
SEP										
12...	1045	--	375	270	7.9	12.3	10	5.0	9.4	120

DATE	HARD- NESS- NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM- DIS- SOLVED (MG/L AS MG)	SODIUM- DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM- DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LITY (MG/L AS CACO3)
OCT 1978										
10...	11	31	13	5.0	8	.2	2.2	--	--	120
NOV										
07...	21	33	13	4.5	7	.2	2.3	140	0	110
DEC										
13...	14	30	13	4.8	7	.2	3.0	140	0	110
JAN 1979										
11...	6	32	14	4.8	7	.2	2.4	160	0	130
FEB										
07...	14	30	13	5.0	8	.2	2.0	140	0	110
MAR										
07...	5	22	8.7	5.6	12	.3	3.0	95	0	78
APR										
11...	0	24	9.3	4.8	9	.2	1.8	120	0	98
MAY										
11...	6	23	9.3	4.9	10	.2	2.0	110	0	90
JUN										
06...	14	30	11	5.4	9	.2	2.1	130	0	110
JUL										
11...	14	30	13	4.9	8	.2	2.3	140	0	110
AUG										
08...	20	34	14	4.8	11	.2	2.3	150	0	120
SEP										
12...	4	30	12	4.6	7	.2	2.2	--	--	120

SPOKANE RIVER BASIN

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12431900 LITTLE SPOKANE RIVER NEAR MOUTH, NEAR SPOKANE, WA--Continued

WATER QUALITY DATA

DATE	CARRON- DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS PO4)	ARSENIC DIS- SOLVED (UG/L AS AS)
	AS CO2	AS SO4	AS CL	AS N	AS N	AS P	AS P	AS PO4	AS AS
OCT * 1978									
10...	--	15	2.7	1.1	.01	.020	.04	.12	1
NOV									
07...	11	16	3.3	1.2	.09	.020	.03	.09	3
DEC									
13...	4.5	15	4.3	1.2	.01	.040	.01	.03	3
JAN * 1979									
11...	4.1	15	3.5	1.3	.01	.040	.00	.00	4
FEB									
07...	2.8	14	3.4	1.3	.02	.010	.00	.00	3
MAR									
07...	9.6	14	3.8	1.3	.12	.120	.04	.12	2
APR									
11...	.5	9.3	2.8	.81	.03	.030	.00	.00	2
MAY									
11...	4.4	13	2.8	.71	.01	.050	.02	.06	3
JUN									
06...	1.7	16	3.1	.95	.04	.040	.00	.00	4
JUL									
11...	2.2	18	3.3	1.1	.04	.090	.00	.00	4
AUG									
08...	4.8	23	3.7	1.1	.00	.020	.00	.00	4
SEP									
12...	--	17	2.9	1.1	.04	.020	.01	.03	3

DATE	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CH)	COPPER, DIS- SOLVED (UG/L AS CU)	LEAD, DIS- SOLVED (UG/L AS PB)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
	AS BA	AS CD	AS CH	AS CU	AS PB	AS HG	AS SE	AS AG	AS ZN
OCT * 1978									
10...	50	4	0	1	15	.0	0	0	<3
NOV									
07...	0	0	0	0	4	.0	0	0	10
DEC									
13...	50	<1	0	1	92	--	1	0	5
JAN * 1979									
11...	50	<1	0	2	4	.0	0	0	<3
FEB									
07...	50	2	0	1	7	.0	0	0	<3
MAR									
07...	0	0	0	1	14	.0	0	0	10
APR									
11...	50	2	0	2	1	.1	0	0	4
MAY									
11...	0	3	0	0	74	.3	1	0	10
JUN									
09...	0	1	0	0	1	1.2	0	0	10
JUL									
11...	50	<1	0	0	4	1.5	0	0	<3
AUG									
08...	50	<1	0	1	6	--	0	0	<3
SEP									
12...	50	<1	10	0	2	.8	0	0	<3

SPOKANE RIVER BASIN

12432500 LONG LAKE AT LONG LAKE, WA

LOCATION.--Lat 47°50'12", long 117°50'20", in NW¼SW¼ sec.13, T.27 N., R.39 E., Lincoln County, Hydrologic Unit 17010307, at left end of spillway at Long Lake Dam on Spokane River, 12 mi (19 km) north of Reardon and at mile 33.9 (54.5 km).

DRAINAGE AREA.--6,020 mi² (15,600 km²), approximately.

PERIOD OF RECORD.--October 1913 to current year. Prior to October 1950 monthend contents only, published in WSP 1316. October 1950 to September 1977 monthend stage and contents only.

REVISED RECORDS.--WSP 1736: Monthend contents for 1916-33 corrected. WSP 1933: Drainage area.

GAGE.--Water-stage recorder with remote indicator in powerhouse. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Washington Water Power Co.).

REMARKS.--Reservoir is formed by concrete dam, completed in 1913 and raised in 1950. Capacity, 104,200 acre-ft (128 hm³) between elevations 1,512 ft (460.9 m) and 1,536 ft (468.2 m), normal limits of operation. Contents at elevation 1,512 ft (460.9 m) by capacity table used prior to October 1915, 148,600 acre-ft (183 hm³). Records given herein represent usable contents. Water used for power. About 25,000 acres (100 km²) irrigated above station, largely from wells in the Spokane Valley. Flow regulated by Coeur d'Alene Lake (see sta 12415500) and powerplants along Spokane River.

COOPERATION.--Lake elevations and capacity table furnished by Washington Water Power Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 107,600 acre-ft (133 hm³) Jan. 16, 1974, elevation, 1,536.67 ft (468.377 m); minimum, since filling reservoir in 1920, 5,400 acre-ft (6.66 hm³) Mar. 8, 1966, elevation, 1,513.50 ft (461.315 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 104,100 acre-ft (128 hm³) June 21, elevation, 1,535.98 (468.167 m); minimum, 18,100 acre-ft (22.5 hm³) Feb. 11, elevation, 1,516.88 ft (462.345 m).

Capacity table (elevation, in feet and usable contents, in acre-feet)
(Based on data furnished by Washington Water Power Company)

1,513	3,570	1,526	56,330	1,533	89,360
1,517	18,640	1,528	65,460	1,534	94,240
1,520	30,550	1,531	79,740	1,535	99,190
1,522	38,880	1,532	84,540	1,536	104,200

ELEVATION, IN FEET NGVD; WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1535.69	1535.45	1535.55	1535.48	1535.55	1535.73	1535.31	1535.64	1535.42	1535.50	1535.54	1535.72
2	1535.75	1535.39	1535.17	1535.57	1535.81	1535.65	1535.14	1535.55	1535.45	1535.42	1535.72	1535.63
3	1535.61	1534.30	1535.05	1535.73	1535.79	1535.65	1534.05	1535.55	1535.37	1535.46	1535.75	1535.67
4	1535.61	1535.40	1535.24	1535.86	1535.96	1535.65	1535.13	1535.43	1535.30	1535.55	1535.77	1535.72
5	1535.70	1535.49	1535.29	1535.78	1535.80	1535.67	1535.07	1535.52	1535.40	1535.66	1535.82	1535.68
6	1535.72	1535.58	1535.30	1535.23	1535.68	1535.70	1534.58	1535.58	1535.42	1535.81	1535.86	1535.64
7	1535.58	1535.43	1535.28	1535.33	1535.71	1535.78	1534.93	1535.54	1535.46	1535.98	1535.88	1535.70
8	1535.51	1535.65	1535.77	1535.54	1535.75	1535.72	1535.01	1535.42	1535.59	1535.95	1535.70	1535.69
9	1535.70	1535.58	1535.80	1535.78	1535.58	1535.79	1535.00	1535.50	1535.51	1535.49	1535.48	1535.72
10	1535.66	1535.38	1535.77	1535.88	1535.66	1535.54	1534.63	1535.57	1535.82	1535.29	1535.53	1535.48
11	1535.55	1535.21	1535.48	1535.89	1535.76	1535.35	1534.58	1535.50	1535.81	1535.35	1535.65	1535.64
12	1535.65	1535.37	1535.48	1535.85	1535.36	1535.45	1535.15	1535.57	1535.42	1535.38	1535.67	1535.57
13	1535.63	1535.50	1535.35	1535.77	1535.53	1535.72	1535.38	1535.65	1535.85	1535.20	1535.70	1535.53
14	1535.56	1535.42	1534.86	1535.70	1535.62	1535.70	1535.20	1535.46	1535.91	1535.84	1535.63	1535.68
15	1535.67	1535.42	1534.12	1535.70	1535.63	1535.65	1535.19	1535.64	1535.82	1535.86	1535.66	1535.55
16	1535.65	1535.22	1533.55	1535.73	1535.68	1535.55	1535.20	1535.83	1535.82	1535.33	1535.71	1535.68
17	1535.68	1535.23	1533.04	1535.74	1535.67	1535.54	1535.28	1535.34	1535.81	1535.47	1535.78	1535.70
18	1535.63	1535.35	1532.83	1535.75	1535.67	1535.62	1535.02	1535.22	1535.84	1535.52	1535.77	1535.60
19	1535.45	1535.43	1533.40	1535.76	1535.78	1535.68	1535.38	1535.33	1535.91	1535.59	1535.73	1535.72
20	1535.34	1535.38	1534.32	1535.75	1535.74	1535.45	1535.53	1535.41	1535.89	1535.77	1535.64	1535.53
21	1535.30	1535.27	1535.05	1535.71	1535.81	1534.88	1535.49	1535.33	1535.86	1535.84	1535.68	1535.57
22	1535.36	1535.22	1535.42	1535.68	1535.73	1535.11	1535.52	1535.31	1535.88	1535.89	1535.60	1535.72
23	1535.28	1535.35	1535.50	1535.61	1535.62	1535.18	1535.50	1535.36	1535.92	1535.87	1535.69	1535.77
24	1535.15	1535.45	1535.55	1535.44	1535.54	1535.17	1535.46	1535.29	1535.89	1535.80	1535.73	1535.72
25	1535.14	1535.45	1535.58	1535.31	1535.60	1535.15	1535.48	1535.34	1535.85	1535.72	1535.48	1535.69
26	1535.23	1535.25	1535.78	1535.20	1535.69	1535.09	1535.46	1535.38	1535.85	1535.50	1535.41	1535.70
27	1535.28	1535.44	1535.72	1535.23	1535.81	1535.14	1535.46	1535.18	1535.78	1535.38	1535.61	1535.60
28	1535.26	1535.39	1535.71	1535.27	1535.81	1535.15	1535.62	1535.58	1535.73	1534.34	1535.69	1535.60
29	1535.38	1535.55	1535.71	1535.27	---	1535.18	1535.55	1535.56	1535.69	1535.22	1535.71	1535.74
30	1535.52	1535.62	1535.68	1535.25	---	1534.61	1535.53	1535.29	1535.58	1535.28	1535.61	1535.80
31	1535.68	---	1535.58	1535.38	---	1534.84	---	1535.31	---	1535.46	1535.65	---
MEAN	1535.51	1535.38	1535.10	1535.59	1535.69	1535.42	1535.19	1535.45	1535.71	1535.48	1535.67	1535.66
MAX	1535.70	1535.65	1535.80	1535.89	1535.96	1535.79	1535.62	1535.83	1535.92	1535.98	1535.88	1535.80
MIN	1535.14	1534.39	1532.83	1535.20	1535.36	1534.61	1534.05	1535.10	1535.30	1534.34	1535.40	1535.48
†	102,204	102,305	102,104	101,100	103,258	98,400	101,853	100,749	102,104	101,502	102,455	103,208
‡	-201	+181	-281	-1,004	+2,158	-4,858	+3,453	-1,104	+1,355	-602	+953	+753

CAL YR 1977:.....† +899

MTR YR 1978:.....‡ +803

† Total contents, in acre-feet, at end of month.

‡ Change in contents in acre-feet.

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ELEVATION, IN FEET NGVD; WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1535.77	1535.67	1533.69	1531.78	1522.01	1521.63	1535.49	1534.98	1535.18	1535.69	1535.67	1535.32
2	1535.71	1535.76	1533.55	1531.34	1521.35	1521.70	1535.43	1535.11	1534.87	1535.28	1535.40	1535.66
3	1535.56	1535.79	1533.83	1530.98	1520.95	1521.68	1535.51	1534.87	1535.28	1535.40	1535.34	1535.75
4	1535.73	1535.76	1534.12	1530.46	1520.33	1521.66	1535.54	1534.85	1535.31	1535.51	1535.53	1535.73
5	1535.60	1535.63	1534.27	1529.80	1520.06	1522.63	1535.44	1534.79	1535.36	1535.42	1535.45	1535.58
6	1535.52	1535.76	1534.07	1528.96	1519.51	1523.95	1535.40	1535.01	1535.66	1535.42	1535.18	1535.66
7	1535.55	1535.73	1533.37	1528.32	1518.90	1525.26	1535.58	1534.79	1535.67	1535.18	1535.18	1535.68
8	1535.72	1535.72	1532.47	1527.92	1518.37	1526.32	1535.68	1534.54	1535.57	1535.34	1535.33	1535.73
9	1535.73	1535.73	1531.57	1527.07	1517.75	1527.29	1535.68	1534.57	1535.64	1535.30	1535.48	1535.73
10	1535.67	1535.57	1531.34	1527.07	1517.28	1528.45	1535.59	1534.44	1535.61	1535.38	1535.30	1535.60
11	1535.60	1535.30	1530.78	1527.07	1516.90	1529.61	1535.56	1534.56	1535.69	1535.60	1535.21	1535.60
12	1535.62	1535.20	1530.51	1527.55	1517.16	1530.73	1535.51	1534.55	1535.57	1535.40	1535.21	1535.57
13	1535.70	1534.89	1530.17	1527.65	1519.70	1531.77	1535.57	1534.54	1535.45	1535.24	1535.22	1535.53
14	1535.67	1534.62	1530.65	1527.73	1521.25	1532.77	1535.44	1534.64	1535.28	1535.36	1535.29	1535.56
15	1535.79	1534.46	1530.96	1527.47	1521.25	1533.83	1535.57	1534.75	1535.08	1535.43	1535.27	1535.49
16	1535.66	1534.72	1531.36	1527.54	1520.97	1535.01	1535.55	1534.79	1535.06	1535.54	1535.27	1535.52
17	1535.63	1534.86	1531.72	1527.75	1520.62	1535.44	1535.56	1534.82	1535.21	1535.57	1535.35	1535.40
18	1535.69	1534.78	1532.11	1527.93	1520.24	1535.43	1535.02	1534.91	1535.53	1535.62	1535.32	1535.52
19	1535.76	1534.61	1532.20	1528.06	1520.24	1535.40	1535.55	1534.80	1535.65	1535.53	1535.30	1535.41
20	1535.70	1534.19	1532.44	1527.72	1519.97	1535.50	1535.61	1534.87	1535.73	1535.56	1535.42	1535.32
21	1535.68	1534.20	1533.00	1527.36	1519.66	1535.60	1535.52	1535.07	1535.98	1535.55	1535.46	1535.33
22	1535.62	1534.20	1533.70	1526.74	1519.15	1535.44	1535.48	1534.89	1535.63	1535.53	1535.44	1535.56
23	1535.70	1534.18	1534.58	1526.05	1518.68	1535.48	1535.40	1535.21	1535.46	1535.46	1535.50	1535.58
24	1535.79	1534.15	1534.93	1525.10	1518.00	1535.48	1535.52	1535.12	1535.60	1535.46	1535.49	1535.52
25	1535.57	1534.11	1535.23	1524.66	1517.68	1535.52	1535.58	1535.20	1535.63	1535.49	1535.48	1535.58
26	1535.54	1534.09	1535.18	1524.14	1518.95	1535.50	1535.38	1535.34	1535.50	1535.53	1535.56	1535.42
27	1535.51	1533.88	1534.96	1524.11	1520.65	1535.49	1535.26	1535.29	1535.46	1535.64	1535.57	1535.44
28	1535.50	1533.95	1534.67	1524.11	1521.36	1535.48	1535.45	1535.11	1535.24	1535.65	1535.50	1535.42
29	1535.58	1533.60	1534.00	1523.77	---	1535.56	1535.18	1535.09	1535.48	1535.70	1535.48	1535.37
30	1535.51	1533.95	1533.45	1523.23	---	1535.47	1535.14	1535.47	1535.47	1535.47	1535.45	1535.48
31	1535.53	---	1532.74	1522.65	---	1535.42	---	1535.38	---	1535.71	1535.39	---
MEAN	1535.65	1534.85	1532.96	1527.24	1519.61	1531.18	1535.48	1534.91	1535.48	1535.51	1535.40	1535.53
MAX	1535.80	1535.83	1535.23	1531.78	1522.81	1535.60	1535.68	1535.47	1535.98	1535.70	1535.67	1535.75
MIN	1535.50	1533.80	1530.17	1522.65	1516.90	1521.63	1535.62	1534.44	1535.06	1535.18	1535.18	1535.32
+	101.855	93.992	88.103	41.713	36.211	101.303	99.897	101.102	101.553	102.758	101.152	101.604
+	-1.354	-7.803	-5.889	-46.390	-5.502	+65.092	-1.406	+1.205	+451	+1.205	-1.606	+452
CAL YR 1978:.....	+	+	+	+	-14.001	+	+	+	+	+	+	+
WTR YR 1979:.....	+	+	+	+	-1.605	+	+	+	+	+	+	+

† Total contents, in acre-feet, at end of month.
‡ Change in contents in acre-feet.

SPOKANE RIVER BASIN

12453000 SPOKANE RIVER AT LONG LAKE, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 47°50'12", long 117°50'25", in NW¼SW¼ sec.13, T.27 N., R.39 E., Lincoln County, Hydrologic Unit 1701037, on left bank at Long Lake powerhouse, 1.4 mi (2.3 km) upstream from Chamokane Creek, 12 mi (19 km) north of Reardon, and at mile 33.88 (54.51 km).

DRAINAGE AREA.--6,020 mi² (15,590 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1939 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,299.00 ft (395.935 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water discharge records good. Flow regulated by Coeur d'Alene Lake (see sta 12415500) and Long Lake (see sta 12432500) for powerplants of Washington Water Power Co. About 25,000 acres (100 km²) irrigated above station, largely from wells in the Spokane Valley.

COOPERATION.--Discharge records furnished by Washington Water Power Co.; three discharge measurements made by Geological Survey.

AVERAGE DISCHARGE.--40 years, 8,000 ft³/s (226.6 m³/s) 5,796,000 acre-ft/yr (7,150 km³), adjusted for storage in Long Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,700 ft³/s (1,410 m³/s) Jan. 19, 1974, gage height, 78.40 ft (23.896 m); maximum recorded gage height, 78.66 ft (23.976 m) May 24, 1948; minimum daily discharge, 114 ft³/s (3.23 m³/s) Sept. 2, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 32,000 ft³/s (906 m³/s) May 17, elevation, 1,370.15 ft (417.622 m); minimum, 160 ft³/s (4.53 m³/s) July 16, elevation, 1,362.20 ft (415.199 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2860	2360	3390	5150	4040	5920	11100	19300	17900	3510	1590	2310
2	2960	2560	3090	3900	3840	5930	11000	19900	15900	4080	1590	1490
3	3250	2880	1880	3580	3970	5930	12400	21900	15500	4120	1600	2240
4	2320	2880	1970	4090	4030	5990	10100	22000	14700	4150	760	2490
5	2620	2800	2250	4440	3380	5960	10100	23500	13900	3440	1610	2710
6	3480	3140	3070	4840	3950	6000	9730	25500	12000	3180	2330	2380
7	2400	2920	4420	4430	3970	6320	9880	28500	12000	4000	1570	2950
8	2580	2960	5160	3840	3920	7080	9690	30600	12500	2020	1260	2380
9	2880	2940	5150	2920	3950	7060	10300	30900	10100	3150	2050	2570
10	2880	2980	3480	2960	4210	6840	11000	31000	4690	2330	1560	2900
11	2910	3410	4200	3360	4760	6780	11100	29300	4170	1990	1680	2540
12	2760	3080	3660	3100	5010	6800	11100	28000	4410	3360	1490	2650
13	2590	3620	3640	2670	5600	6930	11600	27700	4480	3370	1480	2660
14	2740	3360	1630	2660	5790	7020	11600	26800	4950	2370	1430	2560
15	2530	2980	1970	3520	5770	7040	11300	25700	4820	2320	1590	2760
16	3150	2280	1670	2620	5900	7010	11600	25200	4950	1870	1590	2750
17	2850	2230	1720	2340	5910	9880	11800	24900	4380	2220	1580	2900
18	2690	2890	1730	2350	5920	11100	13700	24500	4830	2300	1600	2020
19	2540	3030	2410	2540	5910	11300	11600	24200	4250	2440	1800	2370
20	2920	3670	2160	3450	5820	10900	13500	23300	4730	2160	1090	2370
21	2920	2630	1100	3500	5640	11100	14000	22300	5460	2290	1370	2330
22	2930	2650	710	4080	5830	11700	14400	22500	5940	2320	1600	1400
23	2710	2720	220	4330	5790	11300	14200	20700	5650	2290	1610	2030
24	2500	2710	1520	4730	5790	11100	14200	21300	3980	1980	1600	2390
25	3410	2710	1560	4080	5820	11400	14200	20800	4030	1570	1500	2360
26	2920	2740	2660	4080	5780	11400	15200	20500	4470	1560	1600	2390
27	2920	3160	3040	2930	5850	11500	15100	20800	4120	1870	1600	2230
28	2940	2470	3320	2850	5920	11500	14900	20800	3560	2260	1730	2220
29	2780	3060	4300	3560	---	11600	16000	19800	2790	1610	2350	2220
30	2760	2410	4130	4010	---	12000	17700	18100	3690	2260	2320	1900
31	2770	---	4450	3640	---	11600	---	18500	---	1940	2360	---
TOTAL	87470	86150	85640	110470	142070	273990	370500	738000	220353	81030	51010	71210
MEAN	2822	2872	2763	3564	5074	8839	12000	23030	7341	2614	1645	2374
MAX	3480	3670	5160	5150	5920	12000	17700	31000	17900	4150	2360	2900
MIN	2320	2200	220	2340	3380	5920	9880	10100	2790	1560	760	1490
AC-FT	173580	178900	169900	219100	281000	543500	742000	1445000	437100	160700	101200	141700
MEANS	-1,354	-7,065	-5,889	-46,390	-5,502	-65,092	-1,406	-1,205	-451	-1,205	-1,606	-452
MEANS	2,600	2,740	2,607	2,809	4,975	9,890	12,460	23,850	7,353	2,633	1,620	2,381
AC-FTS	172,146	163,037	164,011	172,710	276,290	608,592	741,394	1,406,205	437,551	161,905	99,594	141,652

CAL YR 1978: TOTAL 2,591,260 MEAN 7,099 MAX 24,500 MIN 220 AC-FT 5,140,000

DO..... MEANS 7,081 CFSMS 1.10 INS 15.94 AC-FTS 5,128,198

WTR YR 1979: TOTAL 2,322,690 MEAN 6,364 MAX 31,000 MIN 220 AC-FT 4,607,000

DO..... MEANS 6,361 CFSMS 1.00 INP 14.12 AC-FTS 4,605,095

† Change in contents, in acre-feet, in Long Lake.

‡ Adjusted for change in contents, in Long Lake.

SPOKANE RIVER BASIN

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12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued
(National Stream-Quality Accounting Network Station)

WATER-QUALITY RECORDS

LOCATION.--Water Quality monitor 0.6 mi (1.0 km) downstream from discharge station.

PERIOD OF RECORD.--Water years 1959 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March 1973 to current year.

WATER TEMPERATURES: July 1959 to September 1962, October 1966 to September 1970, March 1973 to current year.

INSTRUMENTATION.--Water-quality monitor since March 1973.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. In addition to the water-quality monitor record, samples were collected approximately once a month.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 235 micromhos Sept. 8, 1973; minimum, 50 micromhos May 19, 1976.

WATER TEMPERATURES: Maximum, 24.5°C Aug. 18, 1959; minimum, 0.0°C Jan. 21, Feb. 26, 1960.

EXTREMES OUTSIDE PERIOD OF DAILY RECORD.--Specific conductance: Maximum, 238 micromhos Oct. 2-3, 1961.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 216 micromhos Sept. 19; minimum recorded, 58 micromhos May 17.

WATER TEMPERATURES: Maximum observed, 20.5°C Sept. 25; minimum recorded, 2.0°C Jan. 19, 21-27, Feb. 2.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-WF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT * 1978											
17...	1150	3950	174	8.0	13.4	1.0	7.8	<1	<2	77	8
NOV											
20...	1245	3800	159	8.1	7.6	.50	9.4	1	2	76	9
DEC											
19...	1000	2640	177	7.7	3.5	.60	10.4	<1	23	81	13
JAN * 1979											
18...	1050	3950	179	7.8	2.4	.90	--	<1	4	87	16
FEB											
26...	1230	5720	140	7.3	3.4	19	10.4	K208	K82	68	15
MAR											
26...	1325	11300	95	7.8	6.0	14	13.4	86	<2	44	12
APR											
23...	1050	14000	83	8.1	7.8	1.0	13.9	K7	K2	38	6
MAY											
15...	1050	24400	62	7.8	11.3	7.8	12.3	4	K3	27	12
JUN											
13...	1205	2900	72	7.7	10.2	1.9	9.6	23	2	29	8
JUL											
30...	1330	3960	145	8.0	20.4	1.5	8.6	<1	14	66	9
AUG											
21...	1000	1660	187	8.0	19.9	.30	6.4	6	4	77	2
SEP											
19...	1155	3910	203	7.9	17.3	1.2	4.9	1	<1	91	7
DATE		CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINEITY (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT * 1978											
17...	19	7.1	3.6	9	.2	1.5	69	13	2.9	.1	8.4
NOV											
20...	19	7.0	3.8	10	.2	1.5	67	12	2.9	.1	7.5
DEC											
19...	20	7.5	3.9	9	.2	1.7	58	15	3.0	.1	9.5
JAN * 1979											
18...	21	4.3	4.5	10	.2	1.5	71	15	3.5	.1	12
FEB											
26...	18	5.7	4.3	12	.2	2.0	53	14	3.6	.1	12
MAR											
26...	12	3.3	2.7	12	.2	1.2	32	10	1.5	.1	9.6
APR											
23...	10	3.2	2.4	12	.2	1.0	32	9.8	1.3	.1	7.8
MAY											
15...	7.2	2.1	2.4	16	.2	.9	20	5.9	.6	.1	12
JUN											
13...	8.9	1.6	2.0	13	.2	.7	21	7.3	1.2	.1	7.1
JUL											
30...	16	6.4	3.4	15	.2	1.5	57	8.3	2.7	.1	7.0
AUG											
21...	14	7.4	3.7	4	.2	1.6	75	11	2.4	.1	.9
SEP											
19...	22	4.4	4.5	15	.2	1.9	84	13	3.6	.2	8.5

SPOKANE RIVER BASIN

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO ₂ +NO ₃ TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,NH ₄ + ORG. SUSP. TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)
OCT , 1978										
17...	99	97	.13	1060	.49	.09	.33	.42	.09	.33
NOV										
20...	100	94	.14	1030	.49	.08	.31	.39	.12	.27
DEC										
19...	101	102	.14	720	.61	.04	.31	.35	.07	.28
JAN , 1979										
18...	113	109	.15	1210	.79	.12	.01	.13	.05	.08
FEB										
26...	90	92	.12	1390	1.3	.26	.37	.63	.16	.47
MAR										
26...	59	68	.08	1800	.54	.09	.17	.26	.07	.19
APR										
23...	52	55	.07	1970	.14	.00	.31	.31	.20	.11
MAY										
15...	46	40	.06	3080	.10	.00	.24	.24	.15	.09
JUN										
13...	45	42	.06	352	.14	.04	.33	.37	.09	.28
JUL										
30...	83	80	.11	865	.37	.01	.45	.46	.12	.34
AUG										
21...	106	91	.14	481	.50	.01	.26	.27	.06	.21
SEP										
19...	122	116	.17	1290	.71	.03	.16	.19	.00	.26

DATE	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO ₃)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. & FINER THAN .062 MM
OCT , 1978										
17...	.91	4.0	.020	.030	--	2.0	--	2	21	98
NOV										
20...	.88	3.9	.040	.040	1.4	--	--	6	62	89
DEC										
19...	.96	4.3	.000	.020	--	--	--	2	14	95
JAN , 1979										
18...	.92	4.1	.030	.030	--	1.2	.2	4	43	95
FEB										
26...	1.9	8.5	.100	.070	4.4	--	--	31	479	97
MAR										
26...	.80	3.5	.020	.020	3.8	--	--	13	397	96
APR										
23...	.45	2.0	.020	.050	--	1.1	.8	5	189	100
MAY										
15...	.34	1.5	.030	.010	2.2	--	--	9	603	100
JUN										
13...	.51	2.3	.010	.010	1.9	--	--	7	55	90
JUL										
30...	.83	3.7	.080	.010	--	1.3	.2	4	42	78
AUG										
21...	.77	3.4	.000	.000	2.4	--	--	3	14	98
SEP										
19...	.90	4.0	.020	.020	2.5	--	--	4	42	73

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIIUM, TOTAL RECov- ERABLE (UG/L AS BA)	BARIIUM, SUS- PENDED RECov- ERABLE (UG/L AS BA)	BARIIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECov- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDED RECov- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECov- ERABLE (UG/L AS CR)
OCT , 1978										
17...	1150	1	2	100	70	30	0	0	<1	0
JAN , 1979										
18...	1050	2	2	0	0	30	1	0	<1	0
APR										
23...	1050	1	1	0	0	20	1	0	<1	10
JUL										
30...	1330	3	1	0	0	40	1	0	<1	0

SPOKANE RIVER BASIN

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12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

WATER QUALITY DATA

DATE	CHRO- MIUM: SUS- PENDE REC'D (UG/L AS CR)	CHRO- MIUM: DIS- SOLVED (UG/L AS CR)	COBALT: TOTAL REC'D (UG/L AS CO)	COBALT: SUS- PENDE REC'D (UG/L AS CO)	COBALT: DIS- SOLVED (UG/L AS CO)	COPPER: TOTAL REC'D (UG/L AS CU)	COPPER: SUS- PENDE REC'D (UG/L AS CU)	COPPER: DIS- SOLVED (UG/L AS CU)	IRON: TOTAL REC'D (UG/L AS FE)	IRON: SUS- PENDE REC'D (UG/L AS FE)
OCT * 1978										
17...	0	0	2	0	2	16	11	5	90	80
JAN * 1979										
18...	0	0	1	0	<3	22	18	4	60	50
APR										
23...	10	0	0	0	<3	10	8	2	230	200
JUL										
30...	0	0	0	0	<3	4	2	2	40	30

DATE	IRON: DIS- SOLVED (UG/L AS FE)	LEAD: TOTAL REC'D (UG/L AS PB)	LEAD: SUS- PENDE REC'D (UG/L AS PB)	LEAD: DIS- SOLVED (UG/L AS PB)	MANGA- NESE: TOTAL REC'D (UG/L AS MN)	MANGA- NESE: SUS- PENDE REC'D (UG/L AS MN)	MANGA- NESE: DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL REC'D (UG/L AS HG)	MERCURY SUS- PENDE REC'D (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)
OCT * 1978										
17...	<10	2	2	0	100	60	40	.0	.0	.0
JAN * 1979										
18...	10	16	11	5	60	20	40	.0	.0	.0
APR										
23...	30	17	16	1	40	20	20	.2	.2	.0
JUL										
30...	10	8	8	0	10	3	7	.1	.0	.1

DATE	SELE- NIUM: TOTAL (UG/L AS SE)	SELE- NIUM: SUS- PENDE TOTAL (UG/L AS SE)	SELE- NIUM: DIS- SOLVED (UG/L AS SE)	SILVER: TOTAL REC'D (UG/L AS AG)	SILVER: SUS- PENDE REC'D (UG/L AS AG)	SILVER: DIS- SOLVED (UG/L AS AG)	ZINC: TOTAL REC'D (UG/L AS ZN)	ZINC: SUS- PENDE REC'D (UG/L AS ZN)	ZINC: DIS- SOLVED (UG/L AS ZN)
OCT * 1978									
17...	0	0	0	0	0	0	30	20	8
JAN * 1979									
18...	0	0	0	1	1	0	90	30	60
APR									
23...	0	0	0	0	0	0	150	40	110
JUL									
30...	0	0	0	0	0	0	40	30	10

DATE	TIME	PERI- PHYTON BIOMASS ASH WEIGHT G/50 M	PERI- PHYTON BIOMASS TOTAL WEIGHT G/50 M	CHLOR-A PERI- PHYTON CHROMO- FLUOROM (MG/M2)	CHLOR-R PERI- PHYTON CHROMO- FLUOROM (MG/M2)	LENGTH OF EXPO- SURE (DAYS)
OCT * 1978						
17...	1150	2.60	4.80	18.1	8.58	35
JUL * 1979						
30...	1330	2.52	2.83	36.3	4.80	47

SPOKANE RIVER BASIN
12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued
WATER QUALITY DATA

DATE	TIME	PCH- TOTAL (UG/L)	ALDRIN- TOTAL (UG/L)	CHLOR- DANE- TOTAL (UG/L)	DDD- TOTAL (UG/L)	DDE- TOTAL (UG/L)	DDT- TOTAL (UG/L)	DI- AZINON- TOTAL (UG/L)	DI- ELDRIN- TOTAL (UG/L)	ENDRIN- TOTAL (UG/L)	ETHION- TOTAL (UG/L)
NOV. 1978											
20...	1245	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB. 1979											
26...	1230	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY											
15...	1050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG											
21...	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTA- CHLOR- TOTAL (UG/L)	HEPTA- CHLOR- EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION- TOTAL (UG/L)	METH- OXY- CHLOR- TOTAL (UG/L)	METHYL- PARA- THION- TOTAL (UG/L)	METHYL- TRI- THION- TOTAL (UG/L)	PARA- THION- TOTAL (UG/L)	TOX- APHENE- TOTAL (UG/L)	TOTAL TRI- THION (UG/L)
NOV. 1978										
20...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB. 1979										
26...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY										
15...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG										
21...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	TIME	GROSS ALPHA- DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA- SUSP. (UG/L AS U-NAT)	GROSS ALPHA- DIS- SOLVED (PCI/L AS U-NAT)	GROSS ALPHA- SUSP. (PCI/L AS U-NAT)	GROSS BETA- DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA- SUSP. (PCI/L AS CS-137)	GROSS BETA- DIS- SOLVED (PCI/L AS YT-90)	GROSS BETA- SUSP. (PCI/L AS YT-90)	RADIUM 226- DIS- SOLVED (PCI/L RADON METHOD (PCI/L)	URANIUM DIS- SOLVED (UG/L EXTRAC- TION)
MAY. 1979											
15...	1050	<.4	<.4	<.3	<.3	.7	<.4	.7	<.4	.04	.05

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C); WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	173	160	170	176	172	174	176	174	175	---	---	---
2	173	169	171	175	172	174	178	175	176	---	---	---
3	171	169	170	176	173	174	177	174	175	---	---	---
4	174	169	171	175	172	174	178	175	176	---	---	---
5	175	171	173	173	172	172	179	176	177	---	---	---
6	175	170	172	173	172	173	177	174	175	---	---	---
7	175	172	174	174	173	173	175	174	174	---	---	---
8	175	172	173	175	173	174	174	174	174	---	---	---
9	175	172	174	173	171	172	174	173	174	---	---	---
10	177	171	172	175	171	172	179	174	174	---	---	---
11	172	168	171	173	171	171	175	174	174	---	---	---
12	172	168	171	172	171	171	176	173	174	---	---	---
13	173	170	172	172	170	171	175	174	175	---	---	---
14	175	171	173	171	171	171	178	175	176	---	---	---
15	175	172	174	172	170	171	180	176	177	---	---	---
16	176	173	174	173	172	172	180	177	178	---	---	---
17	176	173	174	173	172	173	180	179	179	---	---	---
18	177	174	175	172	171	172	182	177	179	186	184	185
19	177	171	174	173	171	171	182	177	178	188	185	186
20	174	170	173	175	170	172	180	177	178	185	184	185
21	176	173	174	175	173	174	180	178	179	187	185	185
22	175	174	174	174	172	173	183	179	181	186	185	186
23	177	174	175	174	173	174	182	181	182	186	184	185
24	179	175	177	179	174	174	181	178	180	187	184	186
25	176	173	175	175	174	174	181	178	179	186	184	185
26	175	173	174	174	174	174	182	178	179	186	185	186
27	175	174	175	176	173	173	179	178	178	185	184	184
28	175	174	174	177	173	174	179	178	179	186	183	184
29	175	174	174	177	174	175	179	179	179	183	183	183
30	177	174	175	177	173	175	---	---	---	183	182	183
31	176	173	174	---	---	---	---	---	---	182	181	182
MONTH	179	168	173	179	170	173	183	173	177	188	181	185

SPOKANE RIVER BASIN

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12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	182	181	182	151	149	150	89	87	88	112	106	109
2	182	181	182	151	149	150	88	87	87	111	105	108
3	182	181	181	153	149	151	87	86	87	107	104	106
4	182	181	181	151	149	150	87	85	86	109	106	108
5	182	181	181	149	148	148	87	84	85	109	78	84
6	182	181	182	148	147	147	86	84	85	78	75	77
7	185	182	183	147	143	146	86	83	84	75	72	75
8	184	183	184	143	137	141	85	83	84	72	70	71
9	187	184	185	139	134	136	85	83	84	70	63	65
10	188	186	187	136	133	134	85	83	84	65	62	63
11	188	187	188	136	133	134	85	83	84	64	61	62
12	192	187	188	134	131	132	88	84	87	63	60	61
13	191	189	190	132	129	130	89	88	88	64	60	62
14	193	190	191	131	128	129	89	87	88	66	59	62
15	196	191	193	129	127	128	90	88	89	65	61	63
16	199	193	197	126	112	117	90	89	89	65	61	63
17	203	197	201	113	109	111	89	88	89	64	58	61
18	203	189	195	109	105	107	89	87	88	66	60	62
19	188	181	185	106	103	105	95	86	89	66	59	62
20	182	180	181	104	101	102	87	84	85	68	61	64
21	181	179	180	102	99	101	86	84	85	68	62	65
22	183	179	181	102	100	101	85	83	84	69	61	65
23	179	159	169	102	98	99	84	83	83	66	63	64
24	159	156	157	100	97	98	85	83	84	69	63	65
25	157	153	154	98	96	97	85	83	84	70	62	66
26	157	153	156	96	94	91	84	81	83	69	63	65
27	159	150	154	93	90	92	84	81	83	67	62	64
28	153	149	151	90	88	89	85	81	83	65	62	63
29	---	---	---	91	88	89	83	81	81	66	61	64
30	---	---	---	90	86	89	106	82	98	67	61	64
31	---	---	---	90	87	89	---	---	---	68	61	65
MONTH	203	149	180	153	87	119	106	81	86	112	58	71
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	70	60	66									
2	71	63	67									
3	72	64	68									
4	72	66	69									
5	71	68	70									
6	69	65	67									
7	71	66	69									
8	74	68	71									
9	77	70	73									
10	76	70	73									
11	76	71	73									
12	75	70	73									
13	77	71	73									
14	77	72	75									
15	78	73	76									
16	77	74	76									
17	76	74	76									
18	83	75	78									
19	82	77	80									
20	---	---	---							216	210	212
										215	208	210
21	---	---	---							210	207	208
22	---	---	---							209	202	205
23	---	---	---							210	202	205
24	---	---	---							204	198	197
25	---	---	---							202	194	197
26	---	---	---									
27	---	---	---							201	191	195
28	---	---	---							203	190	195
29	---	---	---							193	188	190
30	---	---	---							196	186	191
31	---	---	---							200	189	193
MONTH	83	60	72							216	186	200

SPOKANE RIVER BASIN

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	15.0	15.0	15.0	11.0	10.5	11.0	5.5	5.5	5.5	---	---	---
2	15.0	15.0	15.0	11.0	10.5	10.5	5.5	5.5	5.5	---	---	---
3	15.0	14.5	15.0	11.0	10.5	10.5	5.5	5.0	5.5	---	---	---
4	15.0	14.5	14.5	11.0	10.0	10.5	5.5	5.0	5.0	---	---	---
5	15.0	14.0	14.5	10.5	10.0	10.5	5.0	4.5	4.5	---	---	---
6	14.5	14.0	14.5	10.5	10.0	10.0	5.0	4.5	4.5	---	---	---
7	14.5	14.0	14.5	10.5	10.0	10.0	4.5	4.5	4.5	---	---	---
8	14.5	14.0	14.5	10.0	10.0	10.0	4.5	4.5	4.5	---	---	---
9	14.5	14.0	14.5	10.0	9.5	9.5	4.5	4.5	4.5	---	---	---
10	14.0	14.0	14.0	9.5	9.5	9.5	4.5	4.0	4.5	---	---	---
11	14.0	13.5	13.5	9.5	9.0	9.0	4.5	4.0	4.0	---	---	---
12	14.0	13.5	13.5	9.0	9.0	9.0	4.0	4.0	4.0	---	---	---
13	14.0	13.0	13.5	9.0	9.0	9.0	4.0	4.0	4.0	---	---	---
14	14.0	13.5	13.5	8.5	8.5	8.5	4.0	4.0	4.0	---	---	---
15	13.5	13.0	13.5	8.5	8.5	8.5	4.0	3.5	4.0	---	---	---
16	13.5	13.5	13.5	8.5	8.0	8.5	4.0	3.5	3.5	---	---	---
17	13.5	13.0	13.5	8.5	8.0	8.5	4.0	3.5	3.5	---	---	---
18	13.5	13.0	13.0	8.0	8.0	8.0	3.5	3.5	3.5	2.5	2.5	2.5
19	13.5	13.0	13.0	8.0	7.5	7.5	3.5	3.0	3.5	2.5	2.0	2.5
20	13.0	13.0	13.0	8.0	7.5	8.0	3.5	3.0	3.5	2.5	2.5	2.5
21	13.0	12.5	12.5	8.0	7.5	7.5	3.5	3.0	3.5	2.5	2.0	2.5
22	12.5	12.5	12.5	7.5	7.5	7.5	3.5	3.5	3.5	2.5	2.0	2.0
23	12.5	12.5	12.5	7.5	7.0	7.5	3.5	3.0	3.0	2.5	2.0	2.0
24	12.5	12.0	12.5	7.0	7.0	7.0	3.5	3.0	3.5	2.5	2.0	2.0
25	12.0	12.0	12.0	7.0	7.0	7.0	3.5	3.0	3.0	2.5	2.0	2.0
26	12.0	12.0	12.0	7.0	6.5	6.5	3.0	3.0	3.0	2.0	2.0	2.0
27	12.0	11.5	12.0	6.5	6.0	6.5	3.0	3.0	3.0	2.5	2.0	2.5
28	12.0	11.5	11.5	6.5	6.0	6.0	3.0	2.5	2.5	2.5	2.5	2.5
29	11.5	11.5	11.5	6.0	5.5	6.0	2.5	2.5	2.5	2.5	2.5	2.5
30	11.5	11.0	11.5	5.5	5.5	5.5	---	---	---	2.5	2.5	2.5
31	11.0	11.0	11.0	---	---	---	---	---	---	2.5	2.5	2.5
MONTH	15.0	11.0	13.5	11.0	5.5	8.5	5.5	2.5	4.0	2.5	2.0	2.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	2.5	2.5	2.5	4.0	3.5	3.5	6.0	6.0	6.0	10.0	9.0	9.5
2	2.5	2.0	2.5	4.0	3.5	4.0	6.0	6.0	6.0	9.5	9.5	9.5
3	2.5	2.5	2.5	3.5	3.5	3.5	6.0	6.0	6.0	10.0	9.5	10.0
4	3.0	2.5	2.5	4.0	3.5	3.5	6.0	5.5	6.0	10.5	10.0	10.0
5	3.0	2.5	3.0	4.0	3.5	4.0	6.0	5.5	6.0	10.5	10.0	10.5
6	3.0	2.5	3.0	4.0	3.5	4.0	6.0	6.0	6.0	10.5	10.5	10.5
7	3.0	2.5	3.0	4.0	4.0	4.0	6.5	5.5	6.0	11.0	10.5	10.5
8	3.0	2.5	2.5	4.0	3.5	4.0	6.0	5.5	6.0	11.0	11.0	11.0
9	3.0	2.5	2.5	4.0	3.5	4.0	6.0	6.0	6.0	11.0	10.5	11.0
10	3.0	2.5	2.5	4.0	3.5	4.0	6.5	6.0	6.5	11.0	10.5	10.5
11	2.5	2.5	2.5	4.0	3.5	4.0	6.5	6.5	6.5	10.5	10.5	10.5
12	3.0	2.5	3.0	4.0	4.0	4.0	7.0	6.5	6.5	10.5	10.5	10.5
13	3.0	3.0	3.0	4.5	4.0	4.5	7.0	6.5	6.5	11.0	10.5	11.0
14	3.0	2.5	3.0	4.5	4.5	4.5	7.0	6.5	6.5	11.5	11.0	11.5
15	3.0	3.0	3.0	4.5	4.5	4.5	7.0	7.0	7.0	12.0	11.5	11.5
16	3.5	3.0	3.0	4.5	4.5	4.5	7.0	7.0	7.0	11.5	11.0	11.0
17	3.5	3.0	3.5	4.5	4.5	4.5	7.5	7.0	7.0	12.0	11.0	11.5
18	3.5	3.5	3.5	5.0	4.5	5.0	7.5	7.0	7.0	12.0	11.5	11.5
19	3.5	3.0	3.5	5.5	5.0	5.0	7.5	7.0	7.0	12.5	12.0	12.0
20	3.5	3.0	3.5	5.5	5.5	5.5	7.0	7.0	7.0	12.5	12.5	12.5
21	3.5	3.0	3.5	5.5	5.5	5.5	7.5	7.0	7.0	12.5	12.5	12.5
22	3.5	3.0	3.5	6.0	5.5	5.5	8.0	7.0	7.5	13.5	12.5	13.0
23	3.5	3.0	3.0	6.0	5.5	5.5	8.0	7.5	7.5	14.0	13.5	13.5
24	3.0	3.0	3.0	5.5	5.5	5.5	7.5	7.5	7.5	14.0	13.5	14.0
25	3.5	3.0	3.5	6.0	5.5	5.5	7.5	7.0	7.5	14.5	14.0	14.0
26	3.5	3.5	3.5	6.0	6.0	6.0	7.5	7.5	7.5	14.5	14.0	14.0
27	3.5	3.5	3.5	6.0	6.0	6.0	8.0	7.5	7.5	14.5	14.5	14.5
28	3.5	3.5	3.5	6.0	6.0	6.0	8.0	7.5	8.0	14.5	14.5	14.5
29	---	---	---	6.0	6.0	6.0	8.5	8.0	8.0	15.0	14.5	15.0
30	---	---	---	6.0	6.0	6.0	9.0	8.5	8.5	15.0	15.0	15.0
31	---	---	---	6.0	6.0	6.0	---	---	---	15.0	15.0	15.0
MONTH	3.5	2.0	3.0	6.0	3.5	5.0	9.0	5.5	7.0	15.0	9.0	12.0

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TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

[illegible]

SPOKANE RIVER BASIN

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE TIME	NOV 20,78 1245	MAR 26,79 1325	MAY 15,79 1050	JUN 13,79 1205				
TOTAL CELLS/ML	1200	6500	9000	12000				
DIVERSITY: DIVISION	1.2	0.3	0.0	0.5				
..CLASS	1.2	0.3	0.0	0.5				
...ORDER	1.0	0.9	0.5	1.0				
...FAMILY	1.9	1.0	0.6	1.0				
...GENUS	2.2	1.3	0.7	1.1				
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
...CHLOROCOCCALES								
...CHARACIACEAE	--	--	--	--	--	--	--	--
...SCHMOEDERIA								
...COELASTRACEAE	--	--	--	--	--	--	--	--
...COELASTRUM								
...OOCYSTACEAE								
...ANKISTHODESMUS	--	--	--	--	--	--	--	--
...OOCYSTIS	58	5	--	--	--	--	--	--
...SELENASTRUM			--	--	--	--	--	--
...SCENEDESMACEAE								
...SCENEDESMUS	--	--	--	--	--	--	--	--
...TETRASPORALES								
...COCCONYXACEAE								
...ELAKATOTHRIX	--	--	--	--	--	--	--	--
...PALMELLACEAE								
...SPHAEROCYSTIS	--	--	--	--	--	--	--	--
...VOLVOCALES								
...CHLAMYDOMONADACEAE								
...CHLAMYDOMONAS	--	--	* 0	--	--	--	* 0	--
...ZYGNEMATALES								
...ZYGNEMATAACEAE								
...MOUGEOTIA	--	--	130	2	--	--	--	--
CHRYSOPHYTA								
..BACILLARIOPHYCEAE								
...CENTRALES								
...COSCINODISACEAE								
...CYCLOTELLA	--	--	* 0	--	--	--	* 0	--
...HELOSIRA	300# 26		5100# 78		8000# 89		9200# 79	
...STEPHANODISCUS	--	--	--	--	67	1	--	--
...PENNALES								
...ACHNANTHACEAE								
...ACHNANTHES	29	2	--	--	--	--	--	--
...COCONEIS	--	--	--	--	--	--	--	--
...CYMBELLACEAE								
...CYMBELLA	--	--	51	1	--	--	--	--
...FRAGILARIACEAE								
...ASTERIONELLA	130	11	260	4	370	4	800	7
...FRAGILARIA	140	12	260	4	130	1	--	--
...SYNEDRA	--	--	530	8	130	1	120	1
...NAVICULACEAE								
...NAVICULA	--	--	--	--	--	--	--	--
...NITZSCHACEAE								
...NITZSCHIA	14	1	* 0	200	2		240	2
...TABELLARIACEAE								
...TABELLARIA	--	--	* 0	67	1	--	--	--
..CHRYSOPHYCEAE								
...CHRYSOMONADALES								
...OCHROMONADACEAE								
...OCHROMONAS	--	--	--	--	--	--	--	--
CRYPTOPHYTA (CRYPTOMONADS)								
..CRYPTOPHYCEAE								
...CRYPTOMONADALES								
...CRYPTOMONADACEAE								
...CRYPTOMONAS	--	--	--	--	--	--	--	--
CYANOPHYTA (BLUE-GREEN ALGAE)								
..CYANOPHYCEAE								
...CHROOCOCCALES								
...CHROOCOCCACEAE								
...ANACYSTIS	--	--	--	--	--	--	--	--
...HORMODONALES								
...NOSTOCACEAE								
...ANABAEANA	490# 42		--	--	--	--	--	--
...OSCILLATORIACEAE								
...OSCILLATORIA	--	--	--	--	--	--	1200	10
EUGLENOPHYTA (EUGLENOIDS)								
..EUGLENOPHYCEAE								
...EUGLENALES								
...EUGLENACEAE								
...EUGLENA	--	--	--	--	--	--	--	--
...TRACHELOMONAS	--	--	76	1	--	--	--	--

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
 * - OBSERVED ORGANISM; MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

SPOKANE RIVER BASIN

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12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE TIME	JUL 30,79 1330	AUG 21,79 1000	SEP 19,79 1155			
TOTAL CELLS/ML	3300	22000	4400			
DIVERSITY: DIVISION	1.5	0.5	0.0			
..CLASS	1.5	0.5	0.9			
...ORDER	1.0	1.4	0.9			
...FAMILY	1.9	2.0	1.2			
...GENUS	2.1	2.0	2.0			
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHARACIACEAE						
...SCHROEDERIA	--	--	--	--	26	1
...COELASTRACEAE						
...COELASTRUM	180	6	7100# 33		280	6
...OOCYSTACEAE						
...ANKISTRODESMUS	--	--	--	--	*	0
...OOCYSTIS	90	3	4300# 20		140	3
...SELENASTRUM	*	0	--	--	--	--
...SCENEDESMACEAE						
...SCENEDESMUS	--	--	--	--	51	1
...TETRASPORALES						
...COCCONYXACEAE						
...ELAKATOTHRIA	--	--	320	1	--	--
...PALMELLACEAE						
...SPHAEROCYSTIS	1400#	42	8500# 39		--	--
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
...CHLAMYDOMONAS	--	--	--	--	*	0
...ZYGNEATALES						
...ZYGNEATAACEAE						
...MOUGEOTIA	--	--	--	--	--	--
CHRYSOPHYTA						
..BACILLARIOPHYCEAE						
...CENTHALES						
...COSCINODISCACEAE						
...CYCLOTELLA	--	--	--	--	--	--
...MELOSTRA	--	--	--	--	--	--
...STEPHANODISCUS	--	--	--	--	--	--
...PENNALES						
...ACHNANTHACEAE						
...ACHNANTHUS	--	--	--	--	*	0
...COCconeis	--	--	--	--	26	1
...CYMBELLACEAE						
...CYMBELLA	--	--	*	0	--	--
...FRAGILARIACEAE						
...ASTERIONELLA	130	4	*	0	1300# 30	
...FRAGILARIA	1000#	31	500	2	2200# 51	
...STNEDRA	*	0	--	--	26	1
...NAVICULACEAE						
...NAVICULA	--	--	120	1	--	--
...NITZSCHIA	--	--	--	--	39	1
...TAHELLARIACEAE						
...TAHELLARIA	--	--	--	--	--	--
..CHRYSOPHYCEAE						
...CHRYSONOMADACEAE						
...OCHROMONADACEAE						
...OCHROMONAS	--	--	--	--	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADACEAE						
...CRYPTOMONAS	*	0	--	--	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
...ANACYSTIS	--	--	--	--	190	4
...MUMMIONALES						
...NOSTOCACEAE						
...ANABAENA	--	--	1000	5	--	--
...OSCILLATORIA						
...OSCILLATORIA	450	14	--	--	--	--
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
...EUGLENA	--	--	--	--	*	0
...THACHELOMONAS	--	--	--	--	--	--

NOTE: * = DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
 * = OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

SANPOIL RIVER BASIN

12434500 SANPOIL RIVER ABOVE JACK CREEK AT KELLER, WA

LOCATION.--Lat 48°05'04", long 118°41'25", in NW¼SW¼ sec.20, T.30 N., R.33 E., Ferry County, Hydrologic Unit 17020004, at road bridge 0.4 mi (0.6 km) upstream from Jack Creek, 0.5 mi (0.8 km) northwest of Keller, 2.4 mi (3.9 km) downstream from gaging station, and at mile 11.7 (18.8 km).

DRAINAGE AREA.--About 889 mi² (2,303 km²).

PERIOD OF RECORD.--Water years 1960-1966 (partial-record station published as 12435000), 1972 (published as 12434500 "near Keller"), 1975 to current year.

REMARKS.--Water discharge from rating, discharge value is fair. Water temperature records collected July 1968 to September 1970 and chemical analyses collected October 1972 to February 1973, at gaging station 2.4 mi (3.9 km) upstream.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUR CONAL UNITS)	TUR- BID- ITY (NTU)
NOV , 1978							
21...	1300	236	203	8.0	.2	0	.40
JAN , 1979							
09...	1050	25	243	7.6	.0	5	.70
MAR							
23...	0900	320	146	8.2	4.0	10	5.4
MAY							
08...	1400	740	84	7.4	8.9	30	10
JUL							
25...	1500	43	195	8.8	26.6	5	1.0
SEP							
26...	1630	25	202	8.8	10.0	5	.40

DATE	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0-7 UM-WF (COLS./ 100 ML)	NITRO- GEN, NO2-NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P)
NOV , 1978							
21...	13.9	<1	.03	.02	.040	.01	.03
JAN , 1979							
09...	10.9	1	.07	.01	.040	--	--
MAR							
23...	12.7	2	.08	.02	.040	.10	.31
MAY							
08...	9.1	K36	.05	.00	.040	.02	.06
JUL							
25...	7.5	240	.02	.02	.040	.05	.15
SEP							
26...	9.6	4	.01	.01	.080	.03	.09

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LOCATION.--Lat 47°57'05", long 118°59'40", on line between secs.1 and 2, T.28 N., R.30 E., Grant County, Hydrologic Unit 17020001, on left bank at Grand Coulee, 0.2 mi (0.3 km) downstream from intake and 0.5 mi (0.8 km) south-west of Grand Coulee Dam.

GAGE.--Recording flowmeters on rated pumps. Prior to Jan. 10, 1978, water stage recorder.

REMARKS:--Water is pumped (beginning May 1951) from Franklin D. Roosevelt Lake behind Grand Coulee Dam, through a lift of about 280 ft (85 m) into feeder canal for a distance of 2 mi (3.2 km) into Banks Lake (formerly called equalizing reservoir). From Banks Lake it is distributed through a system of canals to the Columbia Basin project. Daily discharge computed from pump rating and head. On December 23, 1974, two pump generators (Nos. 7 and 8) were put into operation; these are used to generate power during peak power demand periods in winter months by utilizing the water stored in Banks Lake and returning it back into Franklin D. Roosevelt Lake. Water will be pumped into Banks Lake during periods of low power demand.

COOPERATION.--Discharge records furnished by Bureau of Reclamation; records reviewed by Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 13,300 ft³/s (337 m³/s) Oct. 21-23, 1978; minimum daily discharge, 1,920 ft³/s (54.4 m³/s) Feb. 24, 1975, reverse flow from Banks Lake.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 13,300 ft³/s (377 m³/s) Oct. 21-25; minimum discharge, 222 ft³/s (6.29 m³/s), reverse flow from Banks Lake Aug. 24.

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	2160	.00	.00	.00	.00	.00	.0	12700	8180	8190	6340
2	.0	.00	.00	.00	.00	.00	.00	97	12800	8180	8190	6340
3	.0	.00	.00	.00	.00	.00	.00	2620	12900	8170	8190	6360
4	.0	.00	.00	.00	.00	.00	.00	6620	12900	8180	8190	6360
5	.0	.00	.00	.00	.00	.00	.00	8090	13000	8190	7180	6350
6	.0	.00	.00	.00	.00	.00	.00	8170	13000	8180	7890	6350
7	.0	.00	.00	.00	.00	.00	.00	8330	13000	8170	7890	3150
8	.0	.00	.00	.00	.00	.00	.00	8320	13100	8170	7890	1590
9	.0	.00	.00	.00	.00	.00	.00	8360	13100	8170	7890	1590
10	3340	.00	.00	.00	.00	.00	.00	8390	13100	8170	7890	1590
11	8110	.00	.00	.00	.00	.00	.00	8410	13100	8160	7890	985
12	11500	.00	.00	.00	.00	.00	.00	8420	13100	8160	7900	1620
13	11500	.00	.00	.00	.00	.00	.00	8440	13000	8160	7980	1590
14	11500	.00	.00	.00	.00	.00	.00	8320	13000	8160	8260	1590
15	11500	.00	.00	.00	.00	.00	.00	8500	13000	8170	8250	1590
16	11500	.00	.00	.00	.00	.00	.00	8530	12300	8180	7910	1600
17	11500	.00	.00	.00	.00	.00	.00	8570	11200	7350	7910	1600
18	11500	.00	.00	.00	.00	.00	.00	8610	11200	6930	7920	1600
19	11500	.00	.00	.00	.00	.00	.00	8650	11200	8190	7930	4010
20	12400	.00	.00	.00	.00	.00	.00	8710	11200	8190	7940	6380
21	13300	.00	.00	.00	.00	.00	.00	8740	11200	8190	7930	6370
22	13300	.00	.00	.00	.00	.00	.00	9480	10700	8190	7930	6370
23	13300	.00	.00	.00	.00	.00	.00	12000	9680	8200	3450	6370
24	13300	.00	.00	.00	.00	.00	.00	12100	9700	8190	2540	6370
25	13300	.00	.00	.00	.00	.00	.00	12200	9710	8190	7950	5620
26	11800	.00	.00	.00	.00	.00	.00	12200	9780	8190	7950	6350
27	11400	.00	.00	.00	.00	.00	.00	12300	8800	8190	7950	6340
28	11300	.00	.00	.00	.00	.00	.00	12400	8170	8190	6950	5140
29	10500	.00	.00	.00	.00	.00	.00	12500	8170	8200	6350	6320
30	9780	.00	.00	.00	.00	.00	.00	12600	8170	8200	6340	6320
31	8390	---	.00	.00	.00	.00	---	12700	---	8190	6340	---
TOTAL	245520.0	2160.00	.00	.00	.00	.00	.00	273377.0	345900	251530	230880	130155
MEAN	7920	72.0	.000	.000	.000	.000	.000	8819	11530	8114	7448	4339
MAX	13300	2160	.00	.00	.00	.00	.00	12700	13100	8200	8260	6380
MIN	.00	.00	.00	.00	.00	.00	.00	.00	8170	6930	2540	985
AC-FT	487800	4280	.00	.00	.00	.00	.00	542200	686150	498900	458000	258200
CAL YR 1978 TOTAL		1132414.00							2246000			

1243e000 FRANKLIN D. ROOSEVELT LAKE AT GRAND COULEE DAM, WA

LOCATION.--Lat 47°57'28", long 118°59'02", near center of sec.1, T.28 N., R.30 E., Grant County, Hydrologic Unit 17020001, in block 12 of Grand Coulee Dam on Columbia River, and at mile 596.6 (959.9 km).

DRAINAGE AREA.--74,700 mi² (193,500 km²) approximately.

PERIOD OF RECORD.--April 1938 to current year. Prior to October 1943, published as Columbia River Reservoir at Grand Coulee Dam.

REVISED RECORDS.--WSP 1286: 1942, 1945(M). WSP 1316: 1942 (May monthend contents). WSP 1933: Drainage area.

CORRECTIONS.--WRD Wash. 1973: 1965, 1967. WDR WA-75-1: 1974 monthend contents.

GAGE.--Water-stage recorder. Datum of gage is at 0.00 ft (0.000 m), Bureau of Reclamation datum, adjustment of 1937, or 1.425 ft (0.434 m) National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to Apr. 24, 1942, nonrecording gage at site 2,000 ft (610 m) upstream at same datum.

REMARKS.--Reservoir is formed by concrete dam; construction of dam began in 1934; completed in 1941; storage began early in construction period. Capacity, 5,022,179 acre-ft (6,190 hm³) between elevations, 1,208 ft (368.2 m), proposed lower limit of operation, and 1,288 ft (392.6 m), top of gates. Capacity increased to 5,185,452 acre-ft (6,390 hm³) by use of 2 ft (0.6 m) flashboards installed after high-water period each year beginning August 1961. Storage below 1,208 ft (368.2 m), 4,209,207 acre-ft (5,190 hm³). Figures given herein represent total contents. Water is used for power development and irrigation. Flow is regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversions by Feeder Canal (see 12435500) and for irrigation of about 350,000 acres (141,700 hm²) in the United States plus an additional 37,000 acres (15,000 hm²) in Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents recorded, 9,586,200 acre-ft (11,800 hm³) July 17, 1942, June 3, 1945, elevation, 1,290.3 ft (393.28 m); maximum elevation, 1,290.36 ft (393.302 m), Aug. 6, 1967; minimum contents observed, 16,200 acre-ft (20.0 hm³) Aug. 29, 1938, elevation 956.1 ft (291.42 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 9,246,787 acre-ft (11,400 hm³) Oct. 1, elevation, 1,288.19 ft (392.640 m); minimum, 4,926,252 acre-ft (6,070 hm³) Apr. 24, elevation, 1,222.82 ft (372.716 m).

Capacity table dated October 24, 1975 (elevation, in feet, and contents, in acre-feet)
(Prepared by Geological Survey from data furnished by Bureau of Reclamation)

1,210.0	4,301,035	1,270.0	7,864,082
1,230.0	5,308,657	1,291.0	9,477,261
1,250.0	6,501,603		

ELEVATION* IN FEET NGVD* WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1288.17	1282.59	1274.47	1275.18	1277.07	1257.84	1242.69	1227.94	1268.01	1282.13	1282.52	1285.55
2	1287.96	1282.70	1274.52	1275.02	1276.35	1256.40	1241.26	1229.53	1270.49	1282.08	1282.42	1286.38
3	1287.75	1282.95	1274.97	1275.20	1275.46	1255.03	1239.94	1230.82	1272.54	1281.95	1282.36	1287.01
4	1287.52	1283.24	1275.26	1275.16	1274.85	1254.47	1238.59	1231.30	1273.54	1282.37	1282.44	1287.05
5	1287.41	1283.58	1275.22	1274.99	1274.35	1253.19	1237.26	1233.56	1274.66	1282.49	1283.10	1286.70
6	1286.91	1283.56	1275.25	1274.59	1273.72	1252.97	1235.83	1236.99	1275.63	1282.09	1283.28	1286.47
7	1286.56	1283.51	1275.16	1274.33	1272.88	1253.17	1234.50	1238.66	1276.69	1281.78	1283.33	1286.33
8	1286.28	1283.70	1275.06	1274.52	1272.16	1252.83	1233.22	1239.82	1277.13	1282.01	1283.43	1286.50
9	1285.66	1284.01	1275.45	1275.08	1271.56	1252.66	1232.28	1240.73	1278.00	1281.87	1283.47	1286.82
10	1285.16	1283.99	1275.92	1275.65	1271.43	1252.77	1231.15	1241.64	1279.14	1281.77	1283.39	1286.52
11	1284.96	1283.91	1275.77	1276.06	1271.54	1252.87	1229.83	1242.01	1278.64	1281.51	1283.59	1286.35
12	1284.76	1283.77	1275.95	1276.61	1271.23	1252.29	1228.83	1242.45	1277.98	1281.45	1283.83	1286.32
13	1284.09	1283.29	1275.89	1277.53	1271.41	1251.77	1227.83	1243.22	1277.38	1281.52	1283.92	1286.31
14	1284.51	1282.20	1275.82	1277.93	1270.74	1250.97	1226.76	1243.69	1277.38	1281.85	1284.02	1286.06
15	1284.50	1281.34	1275.97	1278.49	1270.19	1250.57	1226.96	1244.45	1277.45	1282.20	1284.20	1286.37
16	1284.49	1280.85	1276.51	1279.03	1269.57	1249.55	1226.66	1245.48	1278.11	1282.28	1284.60	1286.95
17	1284.40	1280.44	1277.51	1279.55	1269.30	1249.22	1225.89	1246.57	1279.03	1282.23	1284.69	1287.25
18	1284.17	1279.91	1277.47	1280.09	1269.27	1249.67	1225.15	1247.71	1279.34	1282.30	1285.23	1287.21
19	1283.84	1279.54	1277.34	1280.55	1268.57	1249.64	1224.17	1249.28	1279.44	1282.39	1285.93	1286.90
20	1283.61	1279.17	1277.17	1281.06	1267.84	1249.55	1223.80	1250.94	1279.64	1282.44	1286.15	1286.64
21	1283.47	1278.68	1277.09	1281.28	1266.92	1248.90	1223.77	1251.77	1279.72	1282.66	1286.00	1286.16
22	1283.61	1277.98	1277.19	1281.24	1265.89	1248.66	1223.74	1252.44	1279.61	1283.20	1285.92	1286.24
23	1283.18	1277.47	1277.56	1280.96	1264.79	1248.41	1222.96	1253.52	1279.98	1283.09	1286.10	1286.42
24	1283.32	1277.18	1278.46	1280.68	1263.89	1248.22	1223.05	1254.68	1280.77	1282.89	1286.23	1286.06
25	1283.46	1277.12	1279.26	1280.45	1263.02	1248.62	1223.33	1255.99	1280.83	1282.63	1286.78	1285.45
26	1283.27	1276.78	1279.60	1279.77	1261.75	1247.97	1223.54	1257.87	1281.21	1282.55	1286.89	1284.96
27	1283.21	1276.08	1279.54	1279.06	1260.42	1246.60	1223.90	1260.16	1281.49	1282.57	1286.46	1284.29
28	1283.60	1275.50	1279.40	1278.58	1259.05	1246.05	1224.34	1262.61	1281.71	1282.93	1285.92	1283.86
29	1284.01	1275.10	1279.05	1278.27	---	1245.37	1226.12	1264.03	1281.76	1283.36	1285.60	1283.49
30	1283.80	1274.75	1277.77	1274.02	---	1244.36	1226.77	1265.38	1282.18	1283.13	1285.34	1283.67
31	1282.96	---	1276.03	1277.68	---	1243.41	---	1267.02	---	1282.76	1285.21	---
MEAN	1284.85	1280.59	1276.70	1277.83	1269.47	1250.45	1229.14	1246.85	1278.01	1282.34	1284.59	1286.08
MAX	1288.17	1284.01	1279.60	1281.28	1277.07	1257.84	1242.69	1267.02	1282.18	1283.36	1286.89	1287.25
MIN	1282.96	1274.75	1274.47	1274.33	1259.05	1243.41	1222.96	1227.94	1268.01	1281.45	1282.36	1283.49
†	8,831,243	8,210,456	8,305,317	8,428,559	7,098,205	6,089,128	5,133,503	7,651,271	8,770,747	8,815,695	9,007,891	8,886,641
‡	-409,056	-620,787	+94,861	+123,242	-1,330,354	-1,009,077	-955,625	+2,517,768	+1,119,476	+44,948	+192,196	-121,250

CAL YR 1978.....\$ -549,295

WTR YR 1979.....\$ -353,658

† Total contents, in acre feet, at end of month.

‡ Change in contents in acre-feet.

COLUMBIA RIVER MAIN STEM

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12436500 COLUMBIA RIVER AT GRAND COULEE DAM, WA

LOCATION.--Lat 47°57'56", long 118°58'54", in SW¼SE¼ sec.36, T.29 N., R.30 E., Douglas County, Hydrologic Unit 17020005, in pier 3 on west side of bridge on State Highway 155, 3,200 ft (975 m) downstream from Grand Coulee Dam, 14.2 mi (22.8 km) upstream from Nespelem River, and at mile 596.3 (959.4 km).

DRAINAGE AREA.--74,700 mi² (193,500 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1913 to June 1923 (monthly discharge only), July to December 1923, January 1924 to May 1928 (monthly discharge only), June 1928 to current year. Published as "at Grand Coulee near Nespelem" prior to 1936 and as "at Grand Coulee" 1936-42.

REVISED RECORDS.--WSP 1286: 1942, 1947. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at 0.00 ft (0.000 m) Bureau of Reclamation datum, adjustment of 1937. June 27 to Dec. 31, 1923, June 12, 1928, to Mar. 31, 1931, nonrecording gage at site 0.5 mi (0.8 km) upstream at datum 2.4 ft (0.7 m) lower. Apr. 1, 1931, to Dec. 31, 1935, water-stage recorder at site 850 ft (259 m) downstream at present datum. Since June 12, 1935, auxiliary water-stage recorder 5.3 mi (8.5 km) downstream from base gage at datum 1.42 ft (0.433 m) lower.

REMARKS.--Water-discharge records good. Flow is regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversions by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres (1,540 km²) in the United States and an additional 35,000 acres (142 km²) in Canada.

AVERAGE DISCHARGE.--66 years, 110,100 ft³/s (3,118 m³/s), 79,770,000 acre-ft/yr (98,400 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 637,800 ft³/s (18,100 m³/s) June 12, 1948, elevation, 987.90 ft (301.112 m); minimum, 14,900 ft³/s (422 m³/s) Dec. 17, 1956, elevation, 934.37 ft (284.796 m); minimum daily, 15,300 ft³/s (433 m³/s) Feb. 1, 1937.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1894 reached a discharge of 725,000 ft³/s (20,500 m³/s), estimated.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 165,000 ft³/s (4,670 m³/s) Dec. 31; maximum elevation, 961.72 ft (293.132 m) Jan. 1; minimum daily discharge, 46,400 ft³/s (1,310 m³/s) Sept. 2; minimum elevation, 947.08 ft (288.670 m) July 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114000	109000	97200	153000	120000	103000	109000	85500	95100	94800	102000	60300
2	122000	93000	79900	125000	135000	110000	116000	85900	90800	80500	99600	46400
3	117000	86900	66000	118000	145000	113000	107000	112000	74100	84900	101000	47900
4	106000	82100	88300	117000	131000	78200	113000	119000	103000	66200	89600	77300
5	107000	89800	101000	125000	115000	102000	110000	91100	93600	71400	71800	95300
6	105000	105000	107000	130000	115000	74400	110000	62500	102000	90600	97800	90100
7	89600	97600	108000	124000	115000	60700	109000	111000	96500	86200	98400	93500
8	89500	84400	122000	122000	115000	76300	112000	114000	106000	72400	97300	75800
9	98000	97000	97800	114000	108000	72800	103000	118000	79500	93800	97500	72900
10	97500	101000	87100	118000	103000	63900	106000	129000	64800	91300	104000	89000
11	85500	105000	97300	118000	79700	60400	114000	137000	114000	96800	90300	84800
12	89600	106000	100000	117000	92800	77500	107000	134000	107000	94200	82900	83100
13	111000	110000	105000	103000	74000	94600	110000	126000	108000	93700	92200	79000
14	75900	141000	97200	117000	103000	101000	119000	132000	89300	64700	95900	91400
15	91600	135000	99800	114000	108000	91800	78100	117000	90200	64800	88500	63200
16	99000	107000	82800	115000	107000	103000	105000	121000	66400	88200	80000	49800
17	96900	104000	49800	115000	95200	85700	117000	110000	59800	93200	90200	63200
18	90100	111000	87900	114000	84800	61400	115000	118000	92500	92100	72300	73200
19	97500	103000	103000	116000	104000	76000	104000	96600	90600	91800	85400	81500
20	94100	107000	104000	115000	110000	81000	75500	90700	87200	90900	79500	79700
21	86400	107000	100000	109000	110000	105000	68200	122000	86500	83900	95600	85300
22	77000	117000	92900	116000	114000	91800	70000	124000	96400	66500	91800	58400
23	100000	107000	81400	115000	114000	93400	94600	113000	75100	102000	93800	54200
24	85000	92300	64800	115000	112000	91500	86100	115000	68000	105000	94000	76400
25	84300	80400	69800	115000	101000	84100	79000	119000	110000	107000	62300	81100
26	101000	87000	93800	124000	104000	113000	87900	90500	103000	107000	70100	78000
27	93000	103000	107000	130000	102000	126000	93700	88900	97200	104000	90600	83600
28	81600	107000	112000	115000	108000	110000	92300	88988	93400	87400	97800	79500
29	82100	103000	112000	114000	---	109000	61000	121000	90900	77900	90100	76600
30	106000	99600	148000	115000	---	118000	100000	126000	77300	109000	94400	50500
31	118000	---	165000	119000	---	111000	---	109000	---	109000	96100	---
TOTAL	2991200	3078100	3027800	3087000	3033500	2839300	2972400	3427600	2708200	2761200	2773300	2223000
MEAN	96490	102600	97670	118900	108300	91590	99080	110600	90270	89070	89460	74100
MAX	122000	141000	165000	153000	145000	126000	119000	137000	114000	109000	104000	95300
MIN	75900	80400	49800	103000	74000	60400	61000	62500	59800	64700	62300	46400
AC-FT	5933000	6105000	6006000	7313000	6017000	5632000	5896000	6799000	5372000	5477000	5501000	4409000
CAL YR 1978 TOTAL	38162800	MEAN	104600	MAX	170000	MIN	49800	AC-FT	75700000			
WTR YR 1979 TOTAL	35522600	MEAN	97320	MAX	165000	MIN	46400	AC-FT	70460000			

COLUMBIA RIVER MAIN STEM

12436500 COLUMBIA RIVER AT GRAND COULEE DAM, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951-58, 1972, 1974 to September 1979 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1950 to September 1958.

pH: November 1950 to September 1953.

WATER TEMPERATURES: November 1950 to September 1958, July 1974 to September 1979 (discontinued).

INSTRUMENTATION.--Temperature recorder since July 1974.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum, 19.0°C Aug. 9, 10, Sept. 8-10, 1978, Aug. 29, 30, Sept. 1, 5, 7, 10, 11, 17-19, 21, 1979; minimum, 1.0°C Jan. 28-31, Feb. 1, 3, 5-21, 25, 1979.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum, 19.0°C Aug. 29, 30, Sept. 1, 5, 7, 10, 11, 17-19, 21; minimum, 1.0°C Jan. 28-31, Feb. 1, 3, 5-21, 25.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR - (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)
OCT. 1978							
18...	1400	107000	132	7.8	16.4	10	2.0
NOV							
29...	1600	106000	125	7.9	7.9	10	2.0
DEC							
13...	1600	111000	150	7.9	7.0	5	1.0
JAN. 1979							
24...	1515	119000	155	8.0	1.0	5	2.0
FEB							
20...	1605	112000	157	7.4	.8	10	1.0
MAR							
20...	1500	103000	168	8.2	3.0	20	1.0
APR							
25...	1250	81000	170	8.2	8.0	15	3.0
MAY							
09...	1715	120000	170	8.3	8.0	20	2.0
JUN							
06...	1500	131000	145	8.2	10.9	40	3.0
JUL							
25...	1640	122000	140	7.9	16.6	10	1.0
AUG							
22...	1615	131000	140	7.6	18.8	5	1.0
SEP							
12...	1430	108000	138	7.9	19.1	--	--

DATE	OXYGEN, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)
OCT. 1978						
18...	9.1	.08	.01	.020	.01	.03
NOV						
29...	11.6	.10	.03	.030	.01	.03
DEC						
13...	11.1	.11	.01	.040	.01	.03
JAN. 1979						
24...	13.7	.12	.02	.030	.01	.03
FEB						
20...	14.4	.16	.03	.060	.04	.12
MAR						
20...	13.5	.14	.02	.020	.00	.00
APR						
25...	13.4	.11	.04	.020	.00	.00
MAY						
09...	12.6	.05	.01	.040	.00	.00
JUN						
06...	11.3	.05	.03	.020	.00	.00
JUL						
25...	8.9	.05	.03	.020	.00	.00
AUG						
22...	7.6	.09	.00	.020	.00	.00
SEP						
12...	8.1	.14	.01	.020	.01	.03

COLUMBIA RIVER MAIN STEM

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12436500 COLUMBIA RIVER AT GRAND COULEE DAM, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	17.0	17.0	17.0	14.0	14.0	14.0	9.0	9.0	9.0	3.0	3.0	3.0
2	17.0	16.5	17.0	14.0	14.0	14.0	8.5	8.5	8.5	3.0	2.5	2.5
3	16.5	16.5	16.5	14.0	13.5	14.0	8.5	8.5	8.5	---	---	---
4	16.5	16.5	16.5	13.5	13.5	13.5	8.5	8.5	8.5	---	---	---
5	16.5	16.5	16.5	13.5	13.5	13.5	8.5	8.0	8.0	---	---	---
6	16.5	16.5	16.5	13.5	13.5	13.5	8.0	8.0	8.0	---	---	---
7	16.5	16.5	16.5	13.5	13.0	13.0	8.0	8.0	8.0	---	---	---
8	16.5	16.0	16.5	13.0	13.0	13.0	8.0	7.5	7.5	---	---	---
9	16.0	16.0	16.0	13.0	12.5	13.0	7.5	7.5	7.5	2.5	2.5	2.5
10	16.0	16.0	16.0	12.5	12.5	12.5	7.5	7.5	7.5	2.5	2.5	2.5
11	16.0	16.0	16.0	12.5	12.5	12.5	7.5	7.0	7.5	2.5	2.5	2.5
12	16.0	16.0	16.0	12.5	12.5	12.5	7.0	7.0	7.0	2.0	2.0	2.0
13	16.0	16.0	16.0	12.5	12.0	12.5	7.0	6.5	6.5	2.0	2.0	2.0
14	16.0	15.5	15.5	12.0	12.0	12.0	6.5	6.5	6.5	2.0	2.0	2.0
15	15.5	15.5	15.5	12.0	12.0	12.0	6.5	6.0	6.5	2.0	2.0	2.0
16	15.5	15.5	15.5	12.0	11.5	12.0	6.0	6.0	6.0	2.0	2.0	2.0
17	15.5	15.5	15.5	11.5	11.5	11.5	6.0	6.0	6.0	2.0	2.0	2.0
18	15.5	15.0	15.5	11.5	11.0	11.0	6.0	6.0	6.0	2.0	1.5	1.5
19	15.0	15.0	15.0	11.0	11.0	11.0	6.0	5.5	5.5	1.5	1.5	1.5
20	15.0	15.0	15.0	11.0	11.0	11.0	5.5	5.5	5.5	1.5	1.5	1.5
21	15.0	15.0	15.0	11.0	10.5	10.5	5.5	5.0	5.5	1.5	1.5	1.5
22	15.0	15.0	15.0	10.5	10.5	10.5	5.0	5.0	5.0	1.5	1.5	1.5
23	15.0	15.0	15.0	10.5	10.0	10.0	5.0	5.0	5.0	1.5	1.5	1.5
24	15.0	14.5	15.0	10.0	10.0	10.0	5.0	4.5	4.5	1.5	1.5	1.5
25	14.5	14.5	14.5	10.0	9.5	10.0	4.5	4.5	4.5	1.5	1.5	1.5
26	14.5	14.5	14.5	9.5	9.5	9.5	4.5	4.5	4.5	1.5	1.5	1.5
27	14.5	14.5	14.5	9.5	9.5	9.5	4.5	4.0	4.5	1.5	1.5	1.5
28	14.5	14.0	14.5	9.5	9.0	9.5	4.0	4.0	4.0	1.5	1.0	1.0
29	14.0	14.0	14.0	9.0	9.0	9.0	4.0	3.5	4.0	1.0	1.0	1.0
30	14.0	14.0	14.0	9.0	9.0	9.0	3.5	3.5	3.5	1.0	1.0	1.0
31	14.0	14.0	14.0	---	---	---	3.5	3.0	3.5	1.0	1.0	1.0
MONTH	17.0	14.0	15.5	14.0	9.0	11.5	9.0	3.0	6.0	3.0	1.0	2.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	1.0	1.0	1.0	1.5	1.5	1.5	2.5	2.5	2.5	6.0	6.0	6.0
2	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	6.0	6.0	6.0
3	1.5	1.0	1.5	1.5	1.5	1.5	3.0	2.5	2.5	6.5	6.0	6.5
4	1.5	1.5	1.5	1.5	1.5	1.5	3.0	3.0	3.0	6.5	6.5	6.5
5	1.5	1.0	1.5	1.5	1.5	1.5	3.0	3.0	3.0	6.5	6.5	6.5
6	1.0	1.0	1.0	1.5	1.5	1.5	3.5	3.0	3.0	7.0	6.5	6.5
7	1.0	1.0	1.0	1.5	1.5	1.5	3.5	3.5	3.5	6.5	6.5	6.5
8	1.0	1.0	1.0	1.5	1.5	1.5	3.5	3.5	3.5	6.5	6.5	6.5
9	1.0	1.0	1.0	1.5	1.5	1.5	3.5	3.5	3.5	6.5	6.5	6.5
10	1.0	1.0	1.0	1.5	1.5	1.5	4.0	3.5	4.0	7.0	6.5	7.0
11	1.0	1.0	1.0	1.5	1.5	1.5	4.0	4.0	4.0	7.0	7.0	7.0
12	1.0	1.0	1.0	1.5	1.5	1.5	4.0	4.0	4.0	7.5	7.0	7.5
13	1.0	1.0	1.0	1.5	1.5	1.5	4.5	4.0	4.0	7.5	7.5	7.5
14	1.0	1.0	1.0	1.5	1.5	1.5	4.5	4.5	4.5	8.0	7.5	8.0
15	1.0	1.0	1.0	1.5	1.5	1.5	4.5	4.5	4.5	8.0	8.0	8.0
16	1.0	1.0	1.0	1.5	1.5	1.5	4.5	4.5	4.5	8.0	8.0	8.0
17	1.0	1.0	1.0	1.5	1.5	1.5	4.5	4.5	4.5	8.0	8.0	8.0
18	1.0	1.0	1.0	1.5	1.5	1.5	5.0	4.5	5.0	8.5	8.0	8.5
19	1.0	1.0	1.0	2.0	1.5	1.5	5.0	5.0	5.0	8.5	8.5	8.5
20	1.0	1.0	1.0	2.0	2.0	2.0	5.0	5.0	5.0	9.0	8.5	9.0
21	1.0	1.0	1.0	2.0	2.0	2.0	5.5	5.0	5.5	9.0	8.5	9.0
22	1.5	1.5	1.5	2.0	2.0	2.0	5.5	5.5	5.5	9.5	9.0	9.0
23	1.5	1.5	1.5	2.0	2.0	2.0	5.5	5.5	5.5	9.5	9.0	9.5
24	1.5	1.5	1.5	2.0	2.0	2.0	5.5	5.5	5.5	9.5	9.0	9.5
25	1.5	1.0	1.5	2.0	2.0	2.0	5.5	5.5	5.5	10.0	9.0	9.5
26	1.5	1.5	1.5	2.0	2.0	2.0	6.0	5.5	5.5	9.5	9.5	9.5
27	1.5	1.5	1.5	2.0	2.0	2.0	6.0	6.0	6.0	9.5	9.5	9.5
28	1.5	1.5	1.5	2.0	2.0	2.0	6.5	6.0	6.0	9.5	9.5	9.5
29	---	---	---	2.5	2.0	2.5	6.0	6.0	6.0	10.0	9.5	9.5
30	---	---	---	2.5	2.5	2.5	6.5	6.0	6.0	10.0	9.5	9.5
31	---	---	---	2.5	2.5	2.5	---	---	---	10.5	10.0	10.0
MONTH	1.5	1.0	1.0	2.5	1.5	1.5	6.5	2.5	4.5	10.5	6.0	8.0

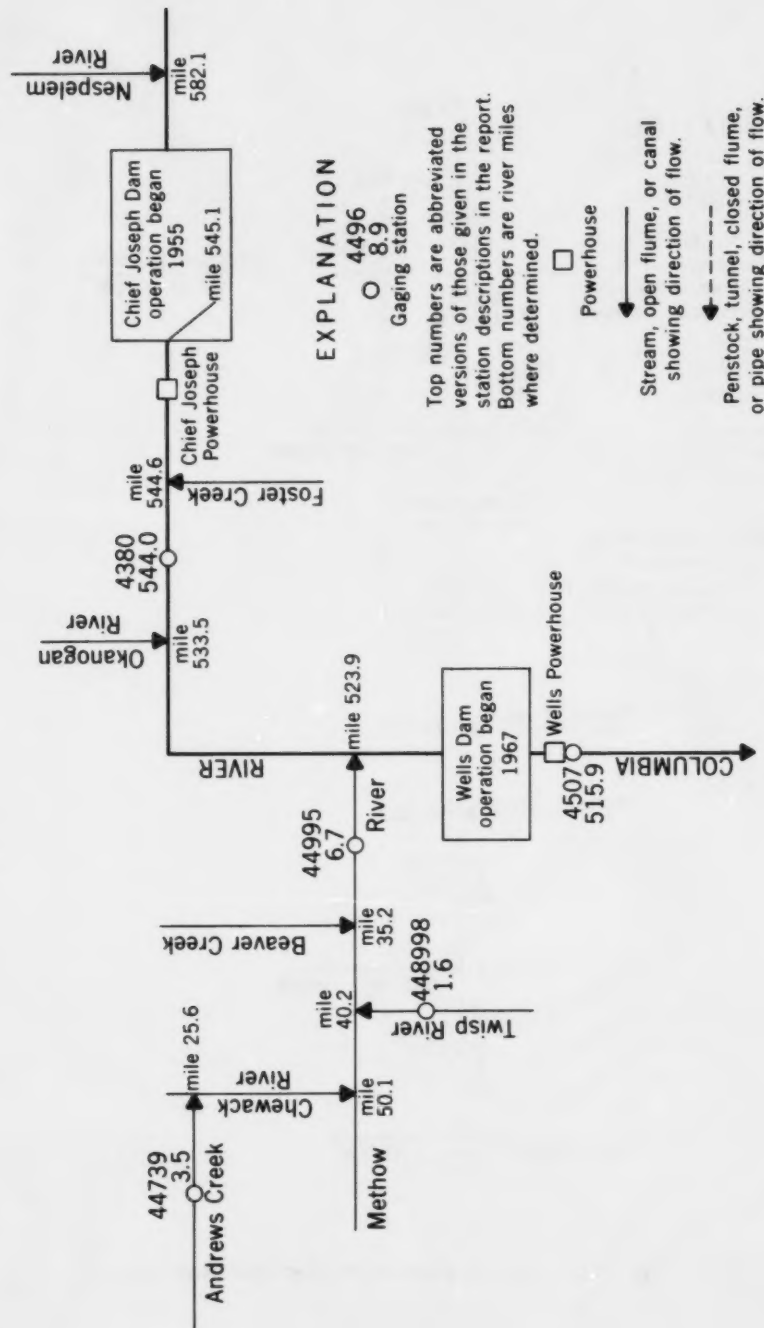


Figure 10. Gaging stations in Columbia River basin from Chief Joseph to Wells Dam.

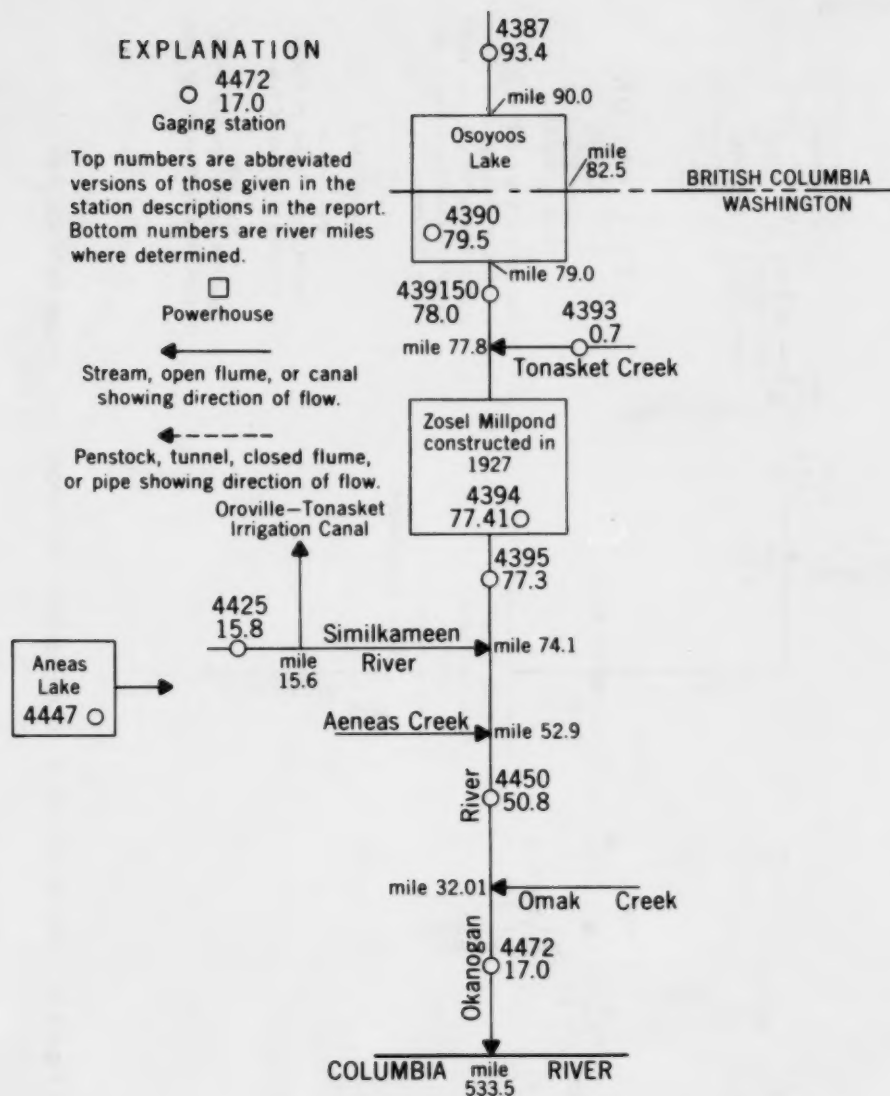


Figure 11. Gaging stations in Okanogan River basin.

COLUMBIA RIVER MAIN STEM

101

12438000 COLUMBIA RIVER AT BRIDGEPORT, WA

LOCATION.--Lat 48°00'24", long 119°39'51", in SW¼SW¼ sec.14, T.29 N., R.25 E., Douglas County, Hydrologic Unit 17020005, on left bank at Bridgeport, 1.0 mi (1.6 km) downstream from Foster Creek, 1.1 mi (1.8 km) downstream from Chief Joseph Dam, and at mile 544.0 (875.3 km).

DRAINAGE AREA.--75,700 mi² (196,100 km²), approximately.

PERIOD OF RECORD.--April 1952 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Since May 26, 1967, auxiliary water-stage recorder 4,800 ft (1,460 m) upstream from base gage at same datum.

REMARKS.--Records fair. Discharge for Oct. 1 through May 18 was obtained from powerplant record supplied by the Corps of Engineers in Portland, Oregon. Flow regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversion by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres (1,540 km²) in the United States and an additional 35,000 acres (142 km²) in Canada.

AVERAGE DISCHARGE.--27 years, 113,700 ft³/s (3,220 m³/s), 82,380,000 acre-ft/yr (102,000 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 495,800 ft³/s (14,000 m³/s) June 11, 1961; maximum elevation, 792.20 ft (241.463 m) June 7, 1956; minimum observed discharge, 4,200 ft³/s (120 m³/s) Mar. 22, 1966, elevation, 746.91 ft (227.658 m); minimum daily discharge, 22,300 ft³/s (632 m³/s) Nov. 11, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 159,000 ft³/s (4,500 m³/s) Dec. 31; minimum daily discharge, 46,200 ft³/s (1,310 m³/s) June 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114000	104000	94900	156000	123000	114000	101000	95600	101000	76200	105000	76600
2	122000	95000	88100	137000	146000	101000	113000	95500	74400	90600	104000	59200
3	111000	85900	61500	108000	143000	107000	112000	93400	71800	84000	104000	60700
4	114000	81400	94800	113000	125000	73700	104000	109000	104000	65000	91500	84700
5	108000	98300	108000	118000	127000	101000	108000	90400	92000	67800	59600	100000
6	107000	109000	108000	125000	114000	79300	112000	70700	91000	86000	81800	92100
7	85300	88500	106000	124000	113000	66300	110000	102000	94400	77700	92400	97800
8	94900	84500	117000	110000	116000	75900	101000	113000	104000	75800	97000	75300
9	95400	101900	90000	118000	105000	72600	113000	114000	74800	93700	104000	66800
10	83800	97900	86600	112000	95900	62600	108000	125000	72400	96600	103000	83300
11	82900	107000	99200	115000	76500	57600	111000	127000	106000	95400	93200	83000
12	97100	95000	104000	114000	98900	72300	108000	126000	107000	91300	81000	83300
13	112000	112000	99500	104000	81000	91600	105000	132000	102000	91600	102000	80800
14	77500	136000	98000	110000	90900	97500	105000	125000	97900	57600	162000	82100
15	90900	136000	97300	104000	103000	94400	75600	120000	94900	55200	93600	69200
16	92500	104000	82000	114000	108000	99100	106000	114000	61600	91500	83300	52200
17	97600	95900	50500	124000	94700	90700	114000	107000	46200	96200	94200	66800
18	95100	113000	94600	114000	84600	63800	112000	112000	88200	92100	77200	74700
19	97800	104000	103000	117000	108000	78000	108000	97400	86900	91300	63000	83600
20	94100	110000	101000	108000	112000	82100	74600	81700	86900	91000	88300	84700
21	84600	105000	95800	111000	124000	99800	68000	113000	84400	85000	95100	92500
22	74600	115000	87600	114000	104000	92500	68500	119000	96600	76600	97800	55800
23	99800	91300	41000	121000	120000	94100	104000	107000	72400	103000	81100	52600
24	84100	82900	63500	112000	112000	91200	105000	108000	69400	102000	89800	72900
25	87900	78200	70600	118000	92000	80600	81400	118000	101000	110000	59000	80100
26	95100	85500	93900	125000	101000	111000	87800	83800	94700	111000	61900	86000
27	94800	109000	109000	130000	101000	120000	84600	83200	91400	108000	104000	84700
28	80700	110000	118000	109000	109000	122000	73400	90900	98900	90300	98800	76300
29	80400	98800	114000	122000	---	110000	61900	107000	93400	94700	103000	67900
30	106000	92600	144000	114000	---	121000	97200	113000	77400	112000	102000	48700
31	118000	---	159000	121000	---	110000	---	103000	---	108000	104000	---
TOTAL	2970900	3016700	3005200	3658000	3036500	2832100	2932200	3292600	2638200	2762000	2817500	2273600
MEAN	95840	100600	96940	118000	108400	91360	97740	106200	87940	89100	90800	75790
MAX	122000	136000	159000	156000	146000	122000	114000	132000	108000	112000	105000	100000
MIN	74600	78200	50500	106000	76500	57600	61000	70700	46200	55200	59000	48700
AC-FT	5893000	5984000	5961000	7256000	6023000	5417000	5816000	6531000	5233000	5478000	5589000	4510000
CAL YR 1978 TOTAL	38917700	MEAN	104290	MAX	159000	MIN	50500	AC-FT	75410000			
WTR YR 1979 TOTAL	35235500	MEAN	96540	MAX	159000	MIN	46200	AC-FT	69890000			

LOCATION.--Lat 49°06'53", long 119°33'50", approximately 75 ft (23 m) upstream from drop structure No. 3, 0.8 mi (1.3 km) downstream from Testalinden Creek, 4.2 mi (6.8 km) south of Oliver, and at mile 93.4 (150.3 km).

PERIOD OF RECORD.--October 1961 to current year in reports of Geological Survey. March 1944 to December 1948 and April 1952 to September 1961 in reports of Department of Northern Affairs and National Resources, Canada.

REMARKS.--Records good. Regulation by control dams at outlets of Okanagan and Skaha Lakes. Diversion for irrigation.

COOPERATION.--This station is maintained by Canada under agreement with the United States subsequent to Feb. 14, 1965.

AVERAGE DISCHARGE.--29 years (water years 1945-47, 1953-56, 1958-79), 605 ft³/s (17.13 m³/s), 438,300 acre-ft/yr (540 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,130 ft³/s (88.6 m³/s) May 27, 1974, gage height, 7.07 ft (2.155 m); minimum, 55.9 ft³/s (1.58 m³/s) Jan. 30, 1963, gage height, 0.63 ft (0.192 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,310 ft³/s (37.1 m³/s) Nov. 30, gage height, 4.48 ft (1.366 m); minimum daily, 221 ft³/s (6.26 m³/s) July 17.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	543	626	1090	508	335	299	311	345	369	294	311	480
2	505	606	739	460	336	305	308	371	347	325	299	411
3	484	694	699	430	340	302	307	393	347	310	286	421
4	509	679	653	405	345	301	319	490	339	293	296	429
5	533	669	621	380	348	308	299	583	333	273	329	426
6	571	678	625	360	352	306	305	560	329	251	341	415
7	577	720	631	352	360	308	341	514	288	272	327	412
8	579	784	650	350	368	303	342	465	276	275	311	401
9	581	884	651	359	357	306	385	438	268	256	317	397
10	641	1110	656	354	358	301	273	415	261	248	312	393
11	673	1130	666	360	345	305	252	383	255	284	304	389
12	628	1140	660	354	350	302	254	387	249	279	298	376
13	596	1150	653	352	355	300	261	381	242	248	298	373
14	617	1150	651	350	353	302	267	389	237	248	297	381
15	611	1160	651	371	332	289	280	409	239	242	309	379
16	604	1150	640	359	289	296	258	407	305	232	323	373
17	580	1170	644	354	320	293	269	379	369	221	333	372
18	592	1160	634	352	324	290	285	371	394	232	353	373
19	606	1146	621	350	322	294	287	369	374	287	360	370
20	608	1150	600	351	287	291	275	369	343	296	354	369
21	634	1150	585	361	286	291	272	376	326	261	349	373
22	626	1140	589	362	306	286	273	384	311	285	351	373
23	638	1140	584	362	304	502	272	419	293	291	354	367
24	598	1150	591	360	311	760	257	484	273	287	371	360
25	605	1150	597	359	303	764	248	405	270	261	370	364
26	605	1140	594	368	304	653	249	481	257	295	361	361
27	607	1150	598	351	309	345	242	558	236	303	351	365
28	617	1230	593	346	301	322	262	507	239	317	335	367
29	616	1280	586	342	---	318	284	479	247	313	336	367
30	629	1300	568	338	---	319	330	443	257	319	358	333
31	650	---	564	335	---	321	---	408	---	316	394	---
TOTAL	18456	30864	19884	11397	9185	10890	6667	13372	8878	8664	10288	11470
MEAN	595	1029	641	368	328	351	282	431	296	279	332	387
MAX	673	1308	1090	500	358	768	342	583	399	325	394	429
MIN	484	626	564	335	286	286	242	345	236	221	246	333
AC-FT	36610	61220	39400	22610	18220	21800	16780	26520	17610	17190	20410	22750
CAL YR 1978	TOTAL		288642	MEAN	736	MAX	2410	MIN	173	AC-FT	532900	

OKANOGAN RIVER BASIN

103

12439000 OSOYOOS LAKE NEAR OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°57'24", long 119°26'18", in NW¼NE¼ sec.21, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on west shore 1 mi (1.6 km) north of Oroville, 3 mi (4.8 km) south of international boundary, and at mile 79.5 (127.9 km).

DRAINAGE AREA.--3,132 mi² (8,112 km²).

PERIOD OF RECORD.--July 1928 to current year.

REVISED RECORDS.--WSP 1346: Drainage area. WRD WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept. 2, 1928, nonrecording gage and Sept. 2, 1928, to Nov. 9, 1929, water-stage recorder, 100 ft (30 m) south of international boundary, Nov. 10, 1929, to Sept. 7, 1930, Mar. 22, 1952, to Sept. 23, 1953, June 25, 1955, to Apr. 11, 1956, nonrecording gage and Sept. 8, 1930, to Mar. 21, 1952, Sept. 24, 1953, to June 24, 1955, Apr. 12, 1956, to Feb. 7, 1969, water-stage recorder at site 1 mi (1.6 km) south of international boundary. All elevations prior to Oct. 1, 1944, at datum 2.39 ft (0.728 m) lower. To convert from present datum to Geodetic Survey of Canada 1934 datum, subtract 1.63 ft (0.497 m); to convert from present datum to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft (0.079 m).

REMARKS.--Approximately 44,000 acres (1,780 km²) are irrigated above station in Canada. Elevation may occasionally be affected by dam at Zosel's mill in Oroville.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 917.11 ft (279.535 m) June 2, 3, 1972; minimum 908.82 ft (277.008 m), present datum, Oct. 14, 1929.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 29, 1894, reached an elevation of 918.8 ft ±0.5 ft (280.05 m ±0.15 m), present datum, 1 mi (1.6 km) below present lake outlet, from floodmark on old Okanogan Hotel Building, pointed out in 1930 by Mr. and Mrs. Stansbury, who kept a diary and operated the hotel in 1894.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 911.75 ft (277.901 m) Dec. 1; minimum, 909.44 ft (277.197 m) Mar. 15.

ELEVATION, IN FEET ABOVE WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	911.29	911.05	911.73	910.21	910.04	909.66	910.35	910.81	911.16	910.94	910.91	911.12
2	911.29	911.05	911.65	910.19	910.04	909.63	910.38	910.87	911.13	910.94	910.91	911.16
3	911.28	911.09	911.53	910.18	910.03	909.61	910.39	910.93	911.09	910.97	910.92	911.23
4	911.28	911.12	911.42	910.17	910.01	909.59	910.42	911.00	911.06	911.00	910.89	911.25
5	911.28	911.12	911.29	910.14	909.98	909.58	910.44	911.14	911.02	911.08	910.90	911.25
6	911.29	911.12	911.18	910.09	909.99	909.57	910.47	911.30	911.00	911.02	910.90	911.26
7	911.30	911.12	911.06	910.04	909.98	909.55	910.48	911.42	910.99	911.02	910.92	911.25
8	911.32	911.04	910.95	909.99	909.95	909.54	910.51	911.48	910.97	911.04	910.94	911.23
9	911.34	910.98	910.88	909.93	909.94	909.52	910.55	911.51	910.97	911.05	910.94	911.21
10	911.36	910.99	910.79	909.90	909.93	909.51	910.56	911.50	910.96	911.03	910.96	911.19
11	911.40	911.00	910.74	909.86	909.91	909.49	910.57	911.48	910.94	911.01	910.97	911.17
12	911.40	911.04	910.70	909.82	909.90	909.49	910.57	911.44	910.92	911.02	910.96	911.14
13	911.41	911.09	910.63	909.81	909.91	909.48	910.59	911.41	910.90	911.00	910.96	911.11
14	911.40	911.12	910.59	909.80	909.91	909.47	910.61	911.38	910.87	910.99	910.95	911.08
15	911.39	911.16	910.55	909.79	909.89	909.47	910.62	911.35	910.84	910.97	910.98	911.05
16	911.38	911.22	910.50	909.79	909.87	909.46	910.64	911.34	910.84	910.96	911.00	911.03
17	911.32	911.28	910.46	909.85	909.85	909.49	910.68	911.29	910.90	910.94	911.03	911.01
18	911.24	911.38	910.44	909.90	909.84	909.52	910.72	911.26	910.97	910.92	911.04	910.99
19	911.18	911.37	910.41	909.96	909.83	909.35	910.75	911.21	911.00	910.92	911.07	910.98
20	911.15	911.34	910.37	910.00	909.80	909.38	910.76	911.18	911.03	910.92	911.11	910.98
21	911.11	911.36	910.34	910.06	909.77	909.60	910.78	911.16	911.04	910.93	911.12	910.99
22	911.06	911.38	910.31	910.11	909.75	909.63	910.79	911.14	911.05	910.89	911.13	910.98
23	911.06	911.41	910.32	910.16	909.72	909.66	910.79	911.14	911.06	910.88	911.15	910.99
24	911.09	911.44	910.34	910.20	909.70	909.78	910.78	911.18	911.05	910.86	911.18	910.99
25	911.04	911.48	910.35	910.24	909.70	909.98	910.77	911.19	911.03	910.84	911.18	911.00
26	911.05	911.51	910.36	910.21	909.78	910.17	910.77	911.16	911.01	910.85	911.18	911.00
27	911.06	911.52	910.34	910.19	909.69	910.27	910.76	911.21	911.08	910.86	911.18	911.00
28	911.05	911.57	910.33	910.14	909.67	910.26	910.74	911.24	910.94	910.89	911.14	911.01
29	911.05	911.62	910.29	910.13	---	910.29	910.74	911.23	910.94	910.87	911.11	911.00
30	911.05	911.68	910.27	910.12	---	910.31	910.75	911.21	910.93	910.84	911.11	911.00
31	911.05	---	910.24	910.09	---	910.34	---	911.20	---	910.90	911.12	---
MEAN	911.22	911.26	910.69	910.04	909.87	909.71	910.62	911.24	910.99	910.95	911.03	911.09
MAX	911.41	911.68	911.73	910.24	910.06	910.34	910.79	911.51	911.16	911.05	911.18	911.26
MIN	911.04	910.98	910.24	909.79	909.67	909.48	910.35	910.81	910.84	910.84	910.89	910.98
CAL YR 1978	MEAN 911.12			MAX 912.90	MIN 910.24							
WTR YR 1979	MEAN 910.73			MAX 911.73	MIN 909.46							

LOCATION.--Lat 48°56'20", long 119°25'36", in SW¼NW¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on right bank 15 ft (5 m) upstream from Cherry Street bridge in Oroville, 700 ft (213 m) upstream from Tonasket Creek, 1.0 mi (1.6 km) downstream from Osoyoos Lake, and at mile 78.0 (125.5 km).

DRAINAGE AREA.--3,133 m² (8,114 km²).

WATER-ELEVATION RECORDS

PERIOD OF RECORD.-- October 1942 to September 1964 (annual maximum and minimum gage heights only published in WSP 1933), October 1964 to current year (gage heights only). April 1939 to November 1944 (fragmentary) and December 1944 to September 1964 gage heights available in file of district office.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Nov. 14, 1944, nonrecording gage and Nov. 15, 1944 to Sept. 30, 1945, water-stage recorder at present site at datum 897.61 ft (273.592 m) higher and Oct. 1, 1945 to Sept. 30, 1975, at datum 900.00 ft (274.320 m) higher. To convert to Geodetic Survey of Canada 1934 datum, subtract 1.63 ft (0.497 m); to convert to 1977 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft (0.079 m).

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation recorded, 916.99 ft (279.499 m) June 2, 1972; minimum recorded, 907.30 ft (276.545 m) Mar. 3, 4, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 911.47 ft (277.816 m) May 9; minimum, 909.02 ft (277.069 m), March 15.

ELEVATION, IN FEET NGVD, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	911.17	910.87	911.41	909.76	909.85	909.35	910.38	910.78	911.08	910.89	910.87	911.04
2	911.17	910.87	911.33	909.75	909.80	909.29	910.32	910.84	911.04	910.87	910.87	911.08
3	911.16	910.91	911.19	909.74	909.80	909.26	910.33	910.88	911.01	910.91	910.88	911.14
4	911.16	910.98	911.09	909.73	909.77	909.24	910.35	910.95	910.99	910.95	910.84	911.15
5	911.17	910.95	910.95	909.71	909.77	909.22	910.38	911.09	910.95	910.96	910.87	911.15
6	911.17	910.95	910.84	909.66	909.78	909.19	910.43	911.25	910.96	910.98	910.86	911.16
7	911.18	910.83	910.68	909.60	909.73	909.16	910.42	911.36	910.94	910.97	910.87	911.15
8	911.20	910.69	910.56	909.54	909.70	909.14	910.44	911.42	910.91	910.98	910.90	911.11
9	911.22	910.63	910.48	909.49	909.69	909.12	910.51	911.45	910.91	911.01	910.90	911.11
10	911.24	910.65	910.39	909.46	909.68	909.10	910.52	911.43	910.90	910.97	910.90	911.09
11	911.27	910.62	910.33	909.41	909.66	909.08	910.53	911.40	910.88	910.96	910.93	911.07
12	911.26	910.66	910.28	909.43	909.65	909.08	910.52	911.36	910.86	910.98	910.91	911.04
13	911.27	910.71	910.19	909.54	909.64	909.07	910.54	911.34	910.86	910.95	910.91	911.01
14	911.26	910.75	910.15	909.54	909.68	909.07	910.56	911.30	910.82	910.93	910.89	910.97
15	911.25	910.78	910.11	909.48	909.65	909.05	910.56	911.27	910.79	910.92	910.92	910.94
16	911.20	910.86	910.06	909.56	909.62	909.10	910.59	911.27	910.79	910.91	910.94	910.94
17	911.08	910.93	910.01	909.73	909.58	909.29	910.62	911.21	910.85	911.00	910.91	910.91
18	911.02	911.13	910.00	909.79	909.58	909.32	910.67	911.18	910.92	910.87	910.99	910.91
19	910.97	911.10	909.96	909.85	909.55	909.36	910.70	911.13	910.95	910.87	911.02	910.88
20	910.95	911.01	909.92	909.90	909.52	909.41	910.72	911.09	910.97	910.86	911.06	910.90
21	910.90	911.02	909.88	909.97	909.50	909.45	910.73	911.07	910.98	910.88	911.06	910.92
22	910.85	911.03	909.93	910.02	909.48	909.48	910.76	911.06	910.99	910.84	911.07	910.91
23	910.86	911.06	910.03	910.06	909.45	909.50	910.75	911.06	911.02	910.84	911.09	910.91
24	910.94	911.10	910.05	910.12	909.42	909.65	910.74	911.09	911.01	910.82	911.11	910.92
25	910.87	911.14	910.06	910.11	909.42	909.88	910.71	911.11	910.98	910.79	911.12	910.92
26	910.88	911.17	910.06	910.01	909.42	910.09	910.71	911.06	910.96	910.80	911.12	910.93
27	910.89	911.18	910.02	909.99	909.40	910.24	910.70	911.13	910.95	910.81	911.11	910.93
28	910.88	911.24	909.95	909.96	909.39	910.16	910.69	911.17	911.00	910.84	911.06	910.94
29	910.88	911.28	909.86	909.93	---	910.22	910.68	911.14	911.14	910.87	910.82	911.02
30	910.88	911.34	909.83	909.90	---	910.26	910.70	911.12	910.88	910.82	911.03	910.93
31	910.87	---	909.80	909.88	---	910.28	---	911.11	---	910.85	911.03	---
MEAN	911.07	910.95	910.30	909.76	909.61	909.46	910.57	911.17	910.93	910.89	910.97	911.00
MAX	911.27	911.34	911.41	910.12	909.85	910.28	910.76	911.45	911.08	911.01	911.12	911.16
MIN	910.86	910.62	909.80	909.41	909.39	909.05	910.30	910.78	910.79	910.79	910.84	910.88
CAL YR 1978	MEAN 910.89			MAX 912.38			MIN 909.80					
WTR YR 1979	MEAN 910.56			MAX 911.45			MIN 909.05					

OKANOGAN RIVER BASIN

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12439150 OKANOGAN RIVER AT BRIDGE STREET AT OROVILLE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959-1970, 1975 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1959 to September 1960.

pH: July 1959 to September 1960.

WATER TEMPERATURE: July 1959 to September 1960.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is good. Records collected at same site prior to October 1970 was published as 12439500 "Okanogan River at Oroville."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)
OCT. 1978										
18...	1155	804	250	8.5	14.9	15	3.0	10.7	--	--
NOV										
29...	1220	1060	294	8.7	2.7	15	2.0	12.7	.03	.01
DEC										
13...	1230	810	280	8.3	1.0	10	1.0	14.7	.04	.01
JAN. 1979										
24...	1200	285	290	8.3	.8	10	2.0	14.2	.06	.00
FEB										
28...	1150	301	292	8.2	2.5	25	2.0	14.6	.08	.00
MAR										
28...	1150	302	285	8.6	5.4	20	1.0	13.6	.01	.00
APR										
25...	1045	268	286	8.6	11.5	15	2.0	12.3	.02	.00
MAY										
09...	1145	431	295	8.7	14.5	15	8.0	10.5	.00	.04
JUN										
06...	1210	293	283	8.5	17.7	35	3.0	9.0	.00	.02
JUL										
25...	1220	188	282	8.6	23.5	15	1.0	7.6	--	--
AUG										
22...	1215	266	272	8.4	23.1	15	2.0	7.2	.01	.00
SEP										
12...	1200	412	275	8.6	20.0	15	4.0	8.4	.00	.02

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)
OCT. 1978									
18...	.02	.03	--	--	--	--	.010	.00	.00
NOV									
29...	.04	.03	.25	.28	.32	1.4	.020	.00	.00
DEC									
13...	.05	.01	.26	.27	.32	1.4	.030	.00	.00
JAN. 1979									
24...	.06	.02	.23	.25	.31	1.4	.020	.00	.00
FEB									
28...	.08	.04	.35	.39	.47	2.1	.040	.05	.15
MAR									
28...	.01	.03	.24	.27	.28	1.2	.010	.00	.00
APR									
25...	.02	.01	.29	.30	.32	1.4	.000	.00	.00
MAY									
09...	.02	.01	.22	.23	.25	1.1	.010	.00	.00
JUN									
06...	.02	.02	.19	.21	.23	1.0	.010	.00	.00
JUL									
25...	.01	.03	--	--	--	--	.010	.00	.00
AUG									
22...	.01	.00	.53	.53	.54	2.4	.010	.00	.00
SEP									
12...	.01	.02	.98	1.0	1.0	4.5	.010	.00	.00

12439300 TONASKET CREEK AT OROVILLE, WA

LOCATION.--Lat 48°56'35", long 119°24'45", in NW¼NE¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on left bank 7 ft (2.1 m) downstream from road bridge, 1.0 mi (1.6 km) northeast of Oroville, and 0.7 mi (1.1 km) above mouth.

DRAINAGE AREA.--60.1 mi² (155.7 km²).

PERIOD OF RECORD.--March 1967 to current year.

REVISED RECORDS.--WRD Wash. 1973: 1972(M).

GAGE.--Water-stage recorder and artificial control. Altitude of gage is 960 ft (293 m), from topographic map.

REMARKS.--Records good. Two small diversions for irrigation of 45 acres (182,000 m²) above station.

AVERAGE DISCHARGE.--12 years, 2.54 ft³/s (0.0719 m³/s) 0.57 in/yr (14 mm/yr), 1,840 acre-ft/yr (2.27 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 455 ft³/s (12.9 m³/s) Feb. 27, 1973, gage height, 5.47 ft (1.667 m), from rating curve extended above 50 ft³/s (1.42 m³/s) on basis of slope-area measurement of peak flow; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 30 ft³/s (0.850 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
July 6	unknown	*102 2.69	*4.52 1.378

Minimum discharge, no flow many days during fall and winter months, and part of each day Aug. 17 and 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	.00	.00	.00	.00	.00	.61	3.1	1.5	1.1	.25	1.6
2	2.5	.00	.00	.00	.00	.00	.65	2.3	1.0	1.5	.20	1.1
3	2.4	.01	.00	.00	.00	.00	.63	2.2	.93	1.6	.42	1.0
4	1.9	.04	.00	.00	.00	.00	.63	2.5	1.1	1.8	.42	.93
5	1.3	.00	.00	.00	.00	.00	.69	3.8	1.6	2.1	.19	.61
6	1.3	.00	.00	.00	.00	.00	.63	5.2	1.0	2.7	.36	.93
7	1.1	.00	.00	.00	.00	.00	.87	4.7	1.2	5.1	.54	1.1
8	1.1	.00	.00	.00	.00	.00	.87	4.1	1.1	2.3	.54	.93
9	.65	.00	.00	.00	.00	.00	1.9	3.2	.61	2.1	2.8	.25
10	.35	.00	.00	.00	.00	.00	5.4	3.2	.54	1.6	4.7	.93
11	.36	.00	.00	.00	.00	.00	5.4	3.1	.84	2.3	1.7	3.0
12	.42	.02	.00	.00	.00	.00	4.1	3.1	1.0	2.1	.61	2.8
13	.60	.01	.00	.00	.00	.00	4.2	2.5	1.1	2.0	.61	1.7
14	.63	.01	.00	.00	.00	1.5	4.2	2.2	1.1	1.7	.61	.54
15	.66	.04	.00	.00	.00	3.0	3.3	2.2	.93	1.7	2.0	.30
16	.70	.01	.00	.00	.00	3.4	2.7	2.0	.74	2.0	2.7	.30
17	.81	.00	.00	.00	.00	2.7	5.2	1.7	.48	1.7	1.1	.48
18	.77	.00	.00	.00	.00	1.9	5.7	1.5	.68	1.2	1.1	.61
19	.76	.02	.00	.00	.00	1.5	5.6	1.5	.74	1.7	2.6	.54
20	.81	.03	.00	.00	.00	1.4	5.0	1.5	.54	1.8	2.6	.36
21	.63	.02	.00	.00	.00	1.3	4.3	1.2	.93	1.6	2.2	.25
22	.09	.05	.00	.00	.00	1.2	3.8	.93	.93	1.4	2.0	.30
23	.05	.02	.00	.00	.00	1.1	3.6	.93	.68	2.1	2.2	.36
24	.00	.00	.00	.00	.00	1.2	3.2	1.7	.54	1.7	2.1	.61
25	.00	.00	.00	.00	.00	1.3	3.3	2.5	1.1	1.6	1.7	.54
26	.00	.00	.00	.00	.00	1.3	3.3	1.7	.93	1.6	1.2	.54
27	.00	.00	.00	.00	.00	1.1	3.7	.84	.84	1.4	1.7	.61
28	.00	.00	.00	.00	.00	.92	4.1	.61	1.0	1.4	2.1	.42
29	.00	.00	.00	.00	.00	.84	3.7	.93	1.1	1.0	1.8	.36
30	.00	.00	.00	.00	.00	.73	3.6	.84	.93	1.2	1.6	.48
31	.00	.00	.00	.00	.00	.67	.00	1.0	.00	.48	2.1	.00
TOTAL	22.29	.28	.00	.00	.00	27.06	95.08	69.18	27.75	55.78	46.75	24.48
MEAN	.72	.009	.000	.000	.000	.87	3.17	2.23	.93	1.80	1.51	.82
MAX	2.5	.05	.00	.00	.00	3.4	5.7	5.2	1.6	5.1	4.7	3.0
MIN	.00	.00	.00	.00	.00	.00	.61	.61	.48	.48	.19	.25
CFSM	.01	.000	.000	.000	.000	.01	.05	.04	.02	.03	.03	.01
IN.	.01	.00	.00	.00	.00	.02	.08	.04	.02	.03	.03	.02
AC-FT	.44	.6	.00	.00	.00	.54	189	137	55	111	93	49

CAL YR 1978 TOTAL 925.49 MEAN 2.54 MAX 14 MIN .00 CFSM .04 IN .57 AC-FT 1840
WTR YR 1979 TOTAL 368.65 MEAN 1.01 MAX 5.7 MIN .00 CFSM .02 IN .23 AC-FT 731

OKANOGAN RIVER BASIN

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12439400 OKANOGAN RIVER AT ZOSEL MILLPOND, AT OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°55'55", long 119°25'05", in SE¼SW¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on left bank in Oroville, 0.4 mi (0.6 km) downstream from Tonasket Creek, 1.6 mi (2.6 km) downstream from Osyoos Lake and at mile 77.41 (124.55 km).

DRAINAGE AREA.--3,195 mi² (8,275 km²).

PERIOD OF RECORD.--October 1942 to September 1964 (annual maximum and minimum gage heights only, published in WSP 1933), October 1964 to current year (gage heights only). April 1939 to March 1944 (fragmentary) and April 1944 to September 1964 gage heights available in file of district office.

REVISED RECORDS.--WRD WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Mar. 27, 1944, nonrecording gage and Mar. 28, 1944 to Sept. 30, 1945 water-stage recorder at present site at datum 897.61 ft (273.592 m) higher and Oct. 1, 1945 to Sept. 30, 1975, at datum 900.00 ft (274.320 m) higher. To convert to Geodetic Survey of Canada 1934 datum, subtract 1.63 ft (0.497 m); to convert to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft (0.079 m).

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD.--Maximum elevation recorded, 916.91 ft (279.474 m) June 2, 1972; minimum recorded, 905.90 ft (276.118 m) Jan. 3, 1959, but may have been lower during period of no gage-height record Mar. 3 or 4, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 911.46 ft (277.813 m) May 8; minimum, 907.86 ft (276.716 m) March 15.

ELEVATION, IN FEET NGVD, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	911.00	910.70	911.04	909.06	909.68	909.02	910.27	910.79	911.00	910.83	910.84	910.89
2	911.00	910.70	910.96	909.04	909.63	908.91	910.30	910.85	910.96	910.82	910.84	910.93
3	910.99	910.74	910.81	909.03	909.62	908.87	910.30	910.89	910.92	910.86	910.86	910.97
4	910.99	910.81	910.69	909.02	909.60	908.86	910.33	910.96	910.91	910.89	910.82	910.97
5	910.99	910.78	910.53	908.98	909.63	908.82	910.35	911.10	910.89	910.90	910.84	910.96
6	911.00	910.79	910.40	908.92	909.62	908.69	910.40	911.26	910.93	910.92	910.84	910.97
7	911.01	910.43	910.18	908.84	909.53	908.56	910.40	911.36	910.91	910.94	910.84	910.91
8	911.02	910.12	910.02	908.77	909.50	908.49	910.42	911.41	910.80	910.96	910.87	910.87
9	911.04	910.06	909.92	908.71	909.49	908.46	910.49	911.43	910.87	910.97	910.87	910.89
10	911.07	910.09	909.80	908.65	909.47	908.43	910.50	911.41	910.86	910.94	910.88	910.87
11	911.08	910.05	909.73	908.58	909.46	908.41	910.51	911.37	910.83	910.92	910.89	910.86
12	911.08	910.11	909.66	908.84	909.45	908.41	910.49	911.33	910.81	910.94	910.86	910.80
13	911.08	910.18	909.52	909.31	909.43	908.39	910.51	911.30	910.81	910.91	910.88	910.78
14	911.06	910.23	909.48	909.31	909.49	908.42	910.54	911.26	910.78	910.89	910.84	910.72
15	911.05	910.20	909.42	909.16	909.45	908.12	910.54	911.23	910.75	910.87	910.88	910.69
16	910.98	910.39	909.34	909.38	909.42	908.36	910.57	911.23	910.74	910.86	910.89	910.68
17	910.79	910.47	909.28	909.70	909.38	909.15	910.60	911.17	910.80	910.84	910.95	910.66
18	910.76	910.74	909.26	909.76	909.37	909.19	910.65	911.14	910.88	910.81	910.94	910.64
19	910.73	910.69	909.21	909.82	909.34	909.25	910.68	911.09	910.91	910.79	910.96	910.65
20	910.70	910.59	909.16	909.87	909.32	909.32	910.70	911.05	910.93	910.79	910.98	910.72
21	910.65	910.60	909.12	909.95	909.28	909.36	910.72	911.03	910.93	910.82	910.96	910.73
22	910.60	910.62	909.39	909.99	909.24	909.39	910.74	911.01	910.94	910.77	910.96	910.72
23	910.65	910.65	909.72	910.04	909.21	909.42	910.73	911.01	910.96	910.78	911.00	910.73
24	910.77	910.69	909.74	910.09	909.17	909.58	910.72	911.04	910.95	910.77	911.00	910.74
25	910.69	910.74	909.76	910.02	909.17	909.02	910.70	911.05	910.92	910.76	910.97	910.76
26	910.70	910.77	909.72	909.86	909.17	910.05	910.70	911.00	910.90	910.75	910.97	910.76
27	910.71	910.79	909.60	909.84	909.14	910.20	910.70	911.07	910.89	910.76	910.94	910.75
28	910.70	910.85	909.36	909.80	909.13	910.11	910.68	911.11	910.82	910.82	910.85	910.77
29	910.70	910.90	909.18	909.77	---	910.18	910.67	911.07	910.79	910.78	910.86	910.75
30	910.70	910.97	909.14	909.74	---	910.23	910.71	911.04	910.82	910.79	910.88	910.76
31	910.69	---	909.11	909.71	---	910.25	---	911.03	---	910.82	910.89	---
MEAN	910.67	910.55	909.75	909.41	909.41	909.12	910.55	911.13	910.88	910.85	910.90	910.80
MAX	911.08	910.97	911.04	910.89	909.68	910.26	910.74	911.43	911.00	910.97	911.00	910.97
MIN	910.60	910.05	909.11	908.58	909.13	908.12	910.27	910.79	910.74	910.75	910.82	910.64
CAL YR 1978	MEAN 910.50		MAX 911.92	MIN 909.08								
WTR YR 1979	MEAN 910.35		MAX 911.43	MIN 908.12								

OKANOGAN RIVER BASIN

12439500 OKANOGAN RIVER AT OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°55'51", long 119°25'09", in SE4SW4 sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on left bank in Oroville, 20 ft (6 m) downstream from Burlington Northern trestle, 0.5 mi (0.8 km) downstream from Tonasket Creek, 1.7 mi (2.7 km) downstream from Osoyoos Lake, 3.2 mi (5.1 km) upstream from Similkameen River, and at mile 77.3 (124.4 km).

DRAINAGE AREA.--3,195 mi² (8,275 km²).

PERIOD OF RECORD.--October 1942 to current year.

REVISED RECORDS.--WRD WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 900.00 ft (274.320 m), National Geodetic Vertical Datum of 1929. Prior to Oct. 26, 1944, nonrecording gage at Zosel milldam 200 ft (61 m) upstream at same datum. Oct. 26, 1944, to Mar. 6, 1948, water-stage recorder on railroad trestle 20 ft (6 m) upstream at same datum. Auxiliary water-stage recorder 0.5 mi (0.8 km) downstream used during high-water periods since Apr. 10, 1948. May 15, 1946, to Apr. 9, 1948, auxiliary nonrecording gage at same site and datum. To convert to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft (0.074 m).

REMARKS.--Records excellent. Diversions made to irrigate approximately 44,000 acres (17,800 ha²) in Canada and minor diversions in the United States above station. Natural regulation in several large lakes and artificial regulation in Okanogan Lake 46.7 mi (75.1 km) upstream for flood control and irrigation; also regulated by Zosel milldam at Oroville, 200 ft (61 m) above gage.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--37 years, 665 ft³/s (18.83 m³/s), 481,800 acre-ft/yr (594 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,730 ft³/s (106 m³/s) June 14, 1972; maximum gage height, 16.89 ft (5.148 m) June 2, 1972 (backwater from Similkameen River); minimum daily discharge, 2,270 ft³/s (64.3 m³/s) reverse flow May 29, 1948; minimum gage height, 3.98 ft (1.213 m) Mar. 1, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,100 ft³/s (31.2 m³/s) Dec. 1, gage height, 7.63 ft (2.326 m); minimum discharge, 189 ft³/s (5.35 m³/s) July 24-27, gage height, 5.92 ft (1.804 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	555	659	1100	680	450	395	267	201	440	225	201	325
2	555	659	1070	675	445	390	267	213	440	217	201	329
3	550	664	1040	670	445	386	263	217	460	217	201	357
4	550	680	1010	665	440	381	263	225	435	217	197	395
5	555	675	980	660	410	381	259	249	362	217	201	405
6	555	675	958	649	420	386	259	281	276	217	197	430
7	560	865	936	628	445	395	255	357	246	217	197	430
8	560	953	909	605	435	390	255	420	242	221	201	425
9	571	948	887	588	435	381	259	435	238	221	201	430
10	576	948	865	573	435	371	255	420	238	221	209	420
11	638	936	854	555	430	371	259	465	238	221	225	425
12	675	948	837	498	425	371	259	455	234	221	225	415
13	696	958	815	441	420	366	259	435	234	225	225	415
14	711	958	810	441	430	362	259	420	221	238	221	415
15	701	964	800	462	425	366	259	435	213	234	225	410
16	784	980	789	347	420	329	259	460	213	225	221	405
17	859	997	768	260	415	291	259	455	217	225	221	405
18	821	1030	768	260	410	285	263	445	221	225	221	400
19	809	1020	753	265	410	276	259	430	221	225	225	366
20	794	1010	742	265	405	267	263	420	225	234	246	325
21	779	1010	732	270	400	267	259	415	220	238	267	320
22	763	1010	664	275	395	272	263	417	226	234	267	320
23	701	1010	618	291	390	272	263	411	229	234	276	320
24	680	1020	618	285	386	281	267	414	229	213	303	325
25	659	1020	618	371	386	289	272	417	229	189	320	325
26	659	1030	638	470	386	307	276	422	225	189	320	325
27	664	1040	675	470	381	311	285	427	225	189	362	325
28	659	1050	711	465	381	303	294	442	234	197	381	325
29	659	1060	706	460	---	281	303	468	229	201	343	325
30	659	1070	696	460	---	272	250	470	225	209	325	325
31	659	---	685	455	---	272	---	450	---	201	325	---
TOTAL	20607	27847	25052	14449	11655	10257	7932	12191	7897	6757	7750	11162
MEAN	665	898	808	466	416	331	264	393	263	218	250	372
MAX	859	1070	1100	680	450	395	303	470	460	238	381	430
MIN	550	659	618	260	381	267	250	201	213	189	197	320
AC-FT	40870	55230	49690	28660	23120	20340	15730	24180	15640	13400	15370	22140

CAL YR 1978 TOTAL 280116 MEAN 767 MAX 2210 MIN 140 AC-FT 555600
WTR YR 1979 TOTAL 163556 MEAN 446 MAX 1100 MIN 189 AC-FT 324400

OKANOGAN RIVER BASIN

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12442500 SIMILKAMEEN RIVER NEAR NIGHTHAWK, WA
(International gaging station)

LOCATION.--Lat 48°59'05", long 119°37'02", in NW¼ sec.7, T.40 N., R.26 E., Okanogan County, Hydrologic Unit 17020007, on left bank 1,000 ft (305 m) upstream from Oroville-Tonasket Irrigation District canal intake, 1.6 mi (2.6 km) northeast of Nighthawk, 3.8 mi (6.1 km) downstream from Palmer Creek, and at mile 15.8 (25.4 km).

DRAINAGE AREA.--3,550 mi² (9,190 km²), approximately.

PERIOD OF RECORD.--May 1911 to current year (prior to September 1928, mean monthly discharge included Oroville-Tonasket Irrigation District canal). Published as "near Oroville" 1911-28. Water temperatures January 1949 to September 1950, November 1961 to September 1970, at site 1.7 mi (2.7 km) upstream.

REVISED RECORDS.--WSP 1183: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,137.70 ft (346.771 m) National Geodetic Vertical Datum of 1929, international joint adjustment of 1947. Prior to Sept. 11, 1928, staff gages at sites 7 mi (11.3 km) downstream (below Oroville-Tonasket Irrigation District canal) at various datums.

REMARKS.--Records excellent. Flow at high stages regulated by natural diversion into and release from Palmer Lake. Several small diversions above station for irrigation of about 2,900 acres (1,170 hm²) in the United States in 1946 and approximately 10,500 acres (4,250 hm²) in Canada in 1957.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--68 years, 2,297 ft³/s (65.05 m³/s), 1,664,000 acre-ft/yr (2,050 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,800 ft³/s (1,300 m³/s) June 1, 1972; maximum gage height, 18.78 ft (5.724 m) May 31, 1972; minimum discharge, 65 ft³/s (1.84 m³/s) Jan. 3, 1974, gage height, 1.59 ft (0.485 m), result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,500 ft³/s (292 m³/s) May 27, gage height, 9.30 ft (2.835 m); minimum daily, 240 ft³/s (6.80 m³/s) Dec. 31; minimum gage height, 2.08 ft (0.634 m) Sept. 27-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1210	838	940	250	460	495	811	4860	6030	2190	598	637
2	1160	831	901	300	460	473	787	5810	6420	2170	571	597
3	1140	845	854	380	450	467	775	6250	7060	2040	543	784
4	1100	866	888	440	450	462	760	6340	7180	1880	522	895
5	1070	944	840	400	450	478	758	7260	6860	1760	502	851
6	1050	1020	780	380	480	489	776	7120	6470	1760	480	780
7	1020	992	700	400	480	506	829	6500	5970	1920	458	733
8	993	1720	640	420	480	568	836	5860	5370	2150	440	683
9	965	3560	661	440	480	646	824	5480	4990	1930	424	632
10	951	2360	682	470	480	768	818	5180	4910	1750	406	605
11	923	1790	711	470	490	831	812	4880	4970	1770	385	600
12	923	1420	660	480	500	852	800	4750	4960	1730	371	580
13	951	1030	610	490	520	866	794	4830	4680	1590	359	560
14	923	1090	560	500	540	845	776	5050	4240	1500	349	535
15	909	1100	540	500	540	838	776	5560	3760	1390	350	510
16	888	1220	550	500	544	831	782	6280	3460	1310	353	485
17	867	1390	550	500	550	831	812	6660	3570	1240	372	456
18	862	1430	540	500	550	817	806	6460	4260	1170	472	438
19	824	1330	520	500	522	796	806	6430	3960	1110	512	430
20	812	880	520	500	489	782	794	6370	3680	1050	494	413
21	794	750	580	500	484	775	782	6450	3450	990	460	400
22	782	680	659	500	467	768	788	6970	3220	954	433	384
23	782	696	709	490	451	768	806	7880	3050	909	422	377
24	810	943	718	490	445	803	848	9500	2930	863	461	369
25	912	1040	680	480	478	859	916	9640	2780	823	523	362
26	1030	1130	500	480	511	920	1010	9740	2670	788	546	358
27	952	1110	400	470	517	916	1220	10000	2570	752	593	347
28	920	1020	370	470	506	888	1670	8630	2460	718	600	344
29	936	948	340	460	---	864	2560	7240	2330	681	574	344
30	928	923	250	460	---	852	3730	6380	2210	654	531	358
31	860	---	240	460	---	833	---	6000	---	631	562	---
TOTAL	29247	35646	19013	14080	13784	22847	30271	206280	130470	42181	14686	15847
MEAN	943	1148	613	454	492	738	1009	6654	4349	1361	474	520
MAX	1210	3560	940	500	550	920	3730	10000	7180	2190	600	895
MIN	782	480	240	250	445	462	758	4750	2210	631	349	344
AC-FT	58010	78700	37710	27430	27340	45400	60040	409200	258800	83670	29130	31430

CAL YR 1978 TOTAL 892576 MEAN 2445 MAX 10700 MIN 240 AC-FT 1776000
WTR YR 1979 TOTAL 754392 MEAN 1574 MAX 10000 MIN 240 AC-FT 1139000

OKANOGAN RIVER BASIN

12443600 Similkameen River at Oroville, Wash.

LOCATION.--Lat 48°56'05", long 119°26'27", in NE4SW4 sec.28, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020007, at 12th Avenue bridge at Oroville, 10.0 mi (16.1 km) east of Nighthawk, 10.8 mi (17.4 km) downstream from gaging station, and at mile 5.0 (8.0 km).

DRAINAGE AREA.--3,590 mi² (9,300 km²), approximately.

PERIOD OF RECORD.--Water years 1949-50, 1967-1970 (partial-record station), 1975 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: January 1949 to September 1950, October 1966 to September 1970.

REMARKS.--Water discharge from rating, discharge value is good. Temperature records collected January 1949 to September 1950, October 1966 to September 1970 at county bridge 12.5 mi (20.1 km) upstream and 1.7 mi (2.7 km) upstream from gaging station, published as 12442500 "near Nighthawk."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW (CFS)	STREAM- FLOW: INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)
OCT , 1978							
18...	1140	--	794	187	7.8	10.8	10
NOV							
29...	1200	--	980	170	7.9	.3	15
DEC							
13...	1215	500	--	195	7.9	.0	10
FEB , 1979							
28...	1120	500	--	193	7.7	.2	15
MAR							
28...	1130	--	842	180	8.2	6.0	25
APR							
25...	1030	--	755	200	8.2	13.2	15
MAY							
09...	1130	--	5250	100	7.9	9.2	50
JUN							
06...	1150	--	6190	80	7.9	11.6	60
JUL							
25...	1200	--	610	168	8.4	21.6	15
AUG							
22...	1150	--	202	195	8.0	21.3	10
SEP							
12...	1145	--	416	180	8.4	17.0	15

DATE	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)
OCT , 1978							
18...	3.0	11.3	.02	.03	.010	.01	.03
NOV							
29...	2.0	14.9	.04	.03	.010	.00	.00
DEC							
13...	2.0	13.6	.04	.01	.020	.00	.00
FEB , 1979							
28...	1.0	14.0	.14	.01	.020	.04	.12
MAR							
28...	1.0	12.7	.01	.02	.000	.00	.00
APR							
25...	2.0	11.0	.02	.03	.000	.00	.00
MAY							
09...	8.0	11.8	.02	.01	.020	.00	.00
JUN							
06...	6.0	11.5	.02	.01	.020	.00	.00
JUL							
25...	1.0	8.1	.03	.02	.010	.00	.00
AUG							
22...	2.0	8.3	.02	.01	.010	.00	.00
SEP							
12...	2.0	9.6	.01	.01	.000	.00	.00

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LOCATION.--Lat 48°40'32", long 119°30'35", in SE¼SW¼ sec.25, T.37 N., R.26 E., Okanogan County, Hydrologic Unit 17020006, at Mr. R. C. Wolfe's residence on south shore 4.0 mi (6.4 km) southwest of Tonasket.

PERIOD OF RECORD.--February 1964 to current year (fragmentary).

GAGE.--Nonrecording gage. Altitude of gage is 1,390 ft (424 m), from topographic map. Prior to Aug. 25, 1978, recording or nonrecording gages at several locations near present site, all at present datum.

REMARKS.--Pumping from lake and nearby ground-water wells during irrigation season. Diversion from Okanogan River into lake by pumping during irrigation season beginning June 1970.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 11.78 ft (3.590 m) Oct. 21, 1976; minimum observed, -10.68 ft (-3.255 m) Oct. 10, 16, 1969.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 11.77 ft (3.587 m) Apr. 30; minimum, 5.03 ft (1.533 m) Sept. 7.

[illegible]

OKANOGAN RIVER BASIN

12445000 OKANOGAN RIVER NEAR TONASKET, WA

LOCATION.--Lat 48°37'57", long 119°27'38", in lot 3, sec. 8, T.36 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on right bank 1,000 ft (305 m) upstream from Chewiliken Creek, 5.2 mi (8.4 km) south of Tonasket, and at mile 50.8 (81.7 km).

DRAINAGE AREA.--7,260 mi² (18,800 km²), approximately.

PERIOD OF RECORD.--April 1929 to current year.

REVISED RECORDS.--WSP 862: 1937. WSP 1316: 1934(M), 1938(M). WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 860.78 ft (262.366 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records excellent except those for winter months which are fair. Diversions above station for irrigation of about 10,700 acres (43 km²) in the United States and 55,000 acres (220 km²) in Canada. Flow affected by regulation of Okanogan and Skaha Lakes and by natural storage in other lakes.

AVERAGE DISCHARGE.--50 years, 2,943 ft³/s (83.35 m³/s), 2,132,000 acre-ft/yr (2,630 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 44,700 ft³/s (1,270 m³/s) June 2, 1972, gage height, 22.54 ft (6.870 m); minimum recorded, 126 ft³/s (3.57 m) Sept. 5, 1931, gage height, 3.43 ft (1.045 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,800 ft³/s (278 m³/s) May 27, gage height, 11.30 ft (3.444 m); minimum discharge, 415 ft³/s (11.8 m³/s) Aug. 14-15, gage height, 3.87 ft (1.180 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1800	1500	2100	930	1000	924	1000	4130	5940	2370	664	760
2	1780	1540	2190	980	1000	921	1060	5020	6110	2350	632	844
3	1740	1550	2120	1050	980	897	1030	5750	6600	2290	598	862
4	1720	1570	2060	1110	960	884	1020	5850	7050	2160	566	1060
5	1670	1590	2020	1060	960	881	1010	6390	6940	2010	555	1170
6	1640	1670	2080	1030	960	900	1010	6880	6410	1930	535	1150
7	1610	1740	2040	1030	1000	924	1010	6550	6050	2000	515	1100
8	1590	2020	1850	1030	1000	942	1060	5990	5500	2270	495	1060
9	1560	3680	1790	1030	1020	988	1070	5650	5110	2290	475	1020
10	1540	3770	1650	1050	1040	1050	1050	5390	4880	2050	460	980
11	1540	3890	1670	1030	1040	1150	1040	5180	4870	1900	455	952
12	1500	2660	1660	1000	1060	1210	1020	4970	4920	1940	445	938
13	1610	2330	1650	1000	1080	1220	1030	5020	4820	1820	435	924
14	1640	2160	1600	1000	1080	1220	1000	5010	4480	1720	420	898
15	1620	2330	1550	1000	1080	1190	980	5380	4070	1630	425	868
16	1600	2350	1520	1000	1080	1210	988	5790	3740	1530	430	850
17	1720	2490	1520	900	1080	1120	1040	6430	3640	1440	445	826
18	1710	2550	1500	830	1060	1100	1090	6450	4020	1360	520	802
19	1630	2540	1470	830	1040	1080	1040	6360	4230	1270	555	772
20	1600	2650	1450	830	1020	1050	1020	6270	3930	1210	502	706
21	1580	3010	1550	830	1000	1030	1010	6290	3720	1160	542	659
22	1550	2620	1600	850	970	1020	994	6440	3480	1110	571	648
23	1530	1850	1500	850	950	1020	991	7110	3260	1060	535	632
24	1510	1900	1500	860	950	1040	1000	8430	3130	994	566	632
25	1500	2070	1300	860	961	1070	1040	9200	2990	917	615	632
26	1640	2220	1200	1000	982	1140	1100	9210	2850	868	676	626
27	1700	2360	1100	1100	975	1190	1210	9650	2730	832	712	620
28	1640	2260	1100	1080	942	1190	1470	9240	2630	796	796	620
29	1620	2290	1000	1060	---	1190	2070	7730	2520	769	832	610
30	1630	2180	950	1040	---	1120	3070	6720	2420	736	760	600
31	1610	---	930	1020	---	1100	---	6120	---	700	736	---
TOTAL	50450	68300	49300	39270	28290	32971	34605	200600	133060	47553	17588	24821
MEAN	1627	2277	1590	976	1010	1064	1154	6471	4435	1534	567	827
MAX	1800	3770	2190	1110	1080	1220	3070	9650	7050	2370	832	1170
MIN	1500	1540	930	830	942	881	980	4130	2420	700	420	600
AC-FT	108100	135500	97790	60040	56110	65400	60640	397900	263400	94320	34890	49230

CAL YR 1978 TOTAL 1139313 MEAN 3121 MAX 17700 MIN 530 AC-FT 2260000
WTR YR 1979 TOTAL 717808 MEAN 1967 MAX 9650 MIN 420 AC-FT 1424000

OKANOGAN RIVER BASIN

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12446000 OKANOGAN RIVER AT OKANOGAN, WA

LOCATION.--Lat 48°21'48", long 119°34'36", in SW¼NW¼ sec.16, T.33 N., R.26 E., Okanogan County, Hydrologic Unit 17020006, at highway bridge at Okanogan, 0.2 mi (0.3 km) upstream from Salmon Creek.

DRAINAGE AREA.--7,880 mi² (20,409 km²).

PERIOD OF RECORD.--Water years 1975 to current year.

REMARKS.--Water discharge from rating; discharge value is good.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)
OCT. 1978							
17...	1340	1630	240	8.3	12.7	15	3.0
NOV							
28...	1415	2308	233	8.2	1.6	15	2.0
DEC							
12...	1345	1860	280	8.2	.0	15	2.0
FEB. 1979							
27...	1215	1050	296	8.0	.5	20	5.0
MAR							
27...	1315	1100	255	8.4	8.5	10	3.0
APR							
25...	0930	1050	275	8.5	12.1	15	2.0
MAY							
08...	1245	6570	95	7.7	10.3	65	2.0
JUN							
05...	1310	7390	85	7.8	16.0	65	12
JUL							
24...	1320	1020	232	8.4	24.0	15	1.0
AUG							
21...	1315	424	308	8.2	24.2	15	1.0
SEP							
11...	1245	898	262	8.4	19.2	15	3.0

DATE	OXYGEN, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS PO4)
OCT. 1978						
17...	11.3	.03	.00	.020	.01	.03
NOV						
28...	14.1	.04	.01	.010	.01	.03
DEC						
12...	13.5	.07	--	.010	.00	.00
FEB. 1979						
27...	13.2	.10	.01	.060	.01	.03
MAR						
27...	11.8	.01	.02	.010	.00	.00
APR						
25...	11.6	.02	.02	.010	.00	.00
MAY						
08...	10.8	.03	.00	.040	.00	.00
JUN						
05...	10.4	.02	.03	.050	.00	.00
JUL						
24...	8.4	.02	.04	.020	.00	.00
AUG						
21...	8.3	.03	.00	.010	.01	.03
SEP						
11...	9.9	.03	.02	.050	.01	.03

OKANOGAN RIVER BASIN

12447200 OKANOGAN RIVER AT MALOTT, WA

LOCATION.--Lat 48°16'53", long 119°42'12", in SW¼ sec.9, T.32 N., R.25 E., Okanogan County, Hydrologic Unit 17020006, on right bank 75 ft (23 m) upstream from highway bridge at Malott, 0.1 mi (0.2 km) upstream from Loup Loup Creek, and at mile 17.0 (27.4 km).

DRAINAGE AREA.--8,080 mi² (20,930 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1958 to current year. April 1958 to September 1965, published as "near Malott." Records published for both sites December 1965 to July 1967.

REVISED RECORDS.--WDR WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 783.55 ft (238.826 m), National Geodetic Vertical Datum of 1929. April 1958 to November 1965, water-stage recorder at site 3.9 mi (6.3 km) downstream at National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records excellent except those for Dec. 8 to Mar. 7, which are fair. Diversions above station for irrigation of about 22,000 acres (89 km²) in the United States and 55,000 acres (220 km²) in Canada. Flow regulated by Okanogan and Skaha Lakes and by natural storage in other lakes.

AVERAGE DISCHARGE.--21 years, 3,077 ft³/s (87.14 m³/s), 2,229,000 acre-ft/yr (2,750 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,600 ft³/s (1,290 m³/s) June 3, 1972, gage height, 22.16 ft (6.754 m); minimum observed, 288 ft³/s (8.16 m³/s) Sept. 4, 1970, gage height, 2.03 ft (0.619 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,000 ft³/s (283 m³/s) May 28, gage height, 8.83 ft (2.691 m); minimum discharge, 365 ft³/s (10.3 m³/s) Aug. 17, gage height, 2.35 ft (0.716 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1870	1620	2270	980	1020	960	1190	3570	6280	2330	652	700
2	1820	1580	2250	1020	1020	960	1170	4660	6300	2300	620	745
3	1770	1550	2250	1060	1020	960	1150	5580	6670	2200	575	826
4	1740	1580	2160	1140	1000	940	1130	6000	7270	2170	545	862
5	1710	1580	2120	1100	980	940	1110	6280	7320	2060	522	1070
6	1670	1630	2160	1060	980	960	1110	7140	6960	1910	500	1120
7	1640	1720	2110	1050	1020	980	1100	7020	6510	1940	485	1090
8	1610	1860	1900	1050	1040	1030	1120	6510	6000	2030	449	1070
9	1580	2360	1850	1060	1050	1030	1160	6840	5460	2260	428	1010
10	1560	4160	1700	1080	1050	1070	1160	5720	5110	2110	407	970
11	1540	3400	1700	1080	1060	1140	1140	5440	5000	1920	386	950
12	1550	2880	1700	1040	1080	1220	1130	5240	5030	1860	379	940
13	1580	2560	1790	1020	1100	1250	1140	5120	5010	1860	372	920
14	1630	2260	1650	1020	1100	1300	1120	5170	4760	1730	386	910
15	1640	2270	1680	1020	1100	1320	1090	5380	4350	1640	393	890
16	1620	2390	1580	1020	1100	1320	1090	5850	3930	1560	379	871
17	1630	2380	1560	940	1100	1300	1110	6420	3730	1460	372	853
18	1740	2490	1540	850	1080	1220	1180	6840	3790	1380	400	826
19	1690	2630	1520	860	1080	1200	1180	6670	4310	1290	470	808
20	1630	2240	1520	860	1050	1180	1130	6600	4110	1190	522	772
21	1600	3100	1600	860	1020	1160	1120	6500	3840	1160	560	769
22	1570	2700	1650	870	1000	1130	1100	6640	3610	1110	542	668
23	1540	1900	1600	880	1000	1130	1090	7140	3350	1070	552	660
24	1520	1900	1540	880	940	1140	1090	8060	3160	1000	538	652
25	1500	2180	1400	900	980	1150	1110	9280	3020	920	545	644
26	1520	2300	1300	1050	1000	1190	1150	9440	2870	862	590	652
27	1700	2330	1200	1120	1000	1250	1220	9670	2730	825	644	644
28	1690	2370	1100	1100	980	1290	1370	9820	2620	781	676	636
29	1640	2310	1050	1080	---	1290	1760	8560	2520	754	772	636
30	1630	2270	980	1060	---	1270	2450	7410	2430	718	790	628
31	1640	---	960	1050	---	1210	---	6660	---	684	763	---
TOTAL	50770	68440	51220	31150	28990	35470	36110	206470	138050	47165	16254	24732
MEAN	1638	2241	1652	1005	1035	1144	1204	6660	4602	1521	524	824
MAX	1870	4160	2270	1140	1100	1320	2450	9820	7320	2330	700	1120
MIN	1500	1550	960	860	980	940	1090	3570	2430	604	372	628
AC-FT	108700	135800	101400	61790	57500	70350	71620	409500	273800	93550	32240	49060
CAL YR 1978 TOTAL	1174771			3219	MAX 18500	MIN 490	AC-FT 2338000					
WTR YR 1979 TOTAL	734821			2013	MAX 9820	MIN 372	AC-FT 1458000					

OKANOGAN RIVER BASIN

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12447200 OKANOGAN RIVER AT MALOTT, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959-62, 1963-70 (partial-record station), 1972, 1975 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1969 to June 1971.

REMARKS.--Water years 1959 to 1963 published as 12447300 "near Brewster", 1964 to 1966 published as 12447300 "near Malott."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN- DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-WF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT * 1970										
17...	1300	1600	261	8.3	12.2	10	2.0	10.8	--	--
NOV										
28...	1330	2370	247	8.1	1.0	15	2.0	13.7	--	--
FEB * 1970										
27...	1140	1800	295	8.1	.0	15	5.0	12.7	--	--
MAR										
27...	1245	1270	295	8.4	8.6	10	2.0	11.6	--	--
APR										
10...	1030	1160	270	8.0	9.6	--	1.3	10.3	160	21
24...	1200	1100	270	8.2	13.7	15	4.0	11.1	--	--
MAY										
08...	0855	8800	93	7.6	9.6	--	17	10.6	170	94
08...	1210	6510	98	7.7	10.5	65	12	10.6	--	--
JUN										
05...	0850	7290	73	7.6	15.9	--	15	9.0	120	160
05...	1235	7360	87	7.9	16.5	65	14	10.0	--	--
JUL										
24...	1245	990	233	8.3	23.2	15	1.0	7.8	--	--
26...	1115	853	237	8.4	24.2	--	1.8	7.8	400	130
AUG										
21...	1230	552	310	8.2	23.6	15	2.0	7.7	--	--
27...	1630	652	311	8.5	24.4	--	1.6	6.6	73	300
SEP										
11...	1215	950	262	8.4	18.9	15	2.0	9.5	--	--
27...	0815	636	291	8.0	16.7	--	.40	8.3	24	99

DATE	MAHU- NESS (MG/L AS CACO3)	MARCO- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)
OCT * 1970										
17...	110	14	31	8.5	8.5	14	.3	2.0	120	0
NOV										
28...	110	17	30	7.9	7.5	13	.3	1.0	110	0
FEB * 1970										
27...	--	--	--	--	--	--	--	--	130	--
MAR										
27...	120	19	33	8.4	7.9	13	.3	1.7	120	0
APR										
10...	110	14	31	8.6	8.3	14	.3	1.5	--	--
24...	72	5	22	4.1	3.6	10	.2	.8	62	--
MAY										
08...	43	14	13	4.5	2.7	12	.2	.9	--	--
08...	40	8	12	2.4	2.4	11	.2	.6	39	0
JUN										
05...	40	5	12	2.4	3.0	17	.2	1.1	--	--
05...	36	0	11	2.1	2.2	11	.2	.9	34	0
JUL										
24...	100	13	29	7.4	7.3	13	.3	1.9	110	0
26...	110	17	30	8.1	7.9	13	.3	1.8	--	--
AUG										
21...	140	27	37	12	12	15	.4	2.7	140	0
27...	130	23	35	11	11	15	.4	2.8	--	--
SEP										
11...	110	13	29	9.1	9.7	16	.4	2.3	--	--
27...	140	27	35	12	12	26	.4	2.5	--	--

OKANOGAN RIVER BASIN

12447200 OKANOGAN RIVER AT MALOTT, WA--Continued

WATER QUALITY DATA

DATE	ALKA- LITY (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 100 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
OCT , 1978										
17...	98	27	1.6	--	--	--	--	--	--	.02
NOV										
28...	90	27	1.7	--	--	--	--	--	--	.03
FEB , 1979										
27...	110	33	2.1	--	--	--	--	--	--	.09
MAR										
27...	98	28	1.9	--	--	--	--	--	--	.02
APR										
18...	99	26	1.8	.2	8.5	157	146	.21	492	--
24...	67	7.0	.6	--	--	--	--	--	--	.08
MAY										
08...	29	7.0	1.2	.1	11	69	56	.09	1230	--
08...	32	7.2	1.0	--	--	--	45	.06	791	.00
JUN										
05...	35	8.0	1.1	.2	7.3	56	56	.08	1100	--
05...	28	8.7	.5	--	--	--	41	.06	813	.00
JUL										
24...	90	25	1.7	--	--	--	127	.17	339	.00
26...	91	29	1.8	.2	11	137	145	.19	316	--
AUG										
21...	110	40	2.5	--	--	--	175	.24	261	.02
27...	110	40	2.5	.2	8.3	183	177	.25	322	--
SEP										
11...	97	33	1.8	--	--	--	--	--	--	.02
27...	110	40	2.2	.2	8.5	189	179	.26	325	--

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS, TOTAL (MG/L AS P)
OCT , 1978										
17...	.01	.03	.00	.39	.39	--	--	.42	1.9	.020
NOV										
28...	.01	.04	.01	.18	.19	--	--	.23	1.0	.010
FEB , 1979										
27...	.02	.11	.01	.27	.28	--	--	.39	1.7	.060
MAR										
27...	.00	.02	.02	.06	.08	--	--	.10	.44	.010
APR										
18...	--	.01	.01	.16	.17	.06	.11	.14	.08	.010
24...	.00	.08	.04	.24	.28	--	--	.36	1.8	.000
MAY										
08...	--	.03	.01	.13	.14	.06	.08	.17	.75	.030
08...	.02	.02	.00	.10	.10	--	--	.12	.53	.040
JUN										
05...	--	.01	.01	.14	.15	.06	.09	.16	.71	.030
05...	.02	.01	.01	.11	.12	--	--	.13	.58	.020
JUL										
24...	.02	.02	.03	.49	.52	--	--	.54	2.4	.020
26...	--	.02	.01	.25	.26	.06	.28	.28	1.2	.030
AUG										
21...	.00	.02	.00	.12	.12	--	--	.14	.82	.020
27...	--	.01	.01	--	--	.00	.28	--	--	.050
SEP										
11...	.00	.02	.01	.46	.47	--	--	.49	2.2	.050
27...	--	.06	.03	.41	.44	.08	.36	.50	2.2	.110

OKANOGAN RIVER BASIN

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12447200 OKANOGAN RIVER AT MALOTT, WA--Continued

WATER QUALITY DATA

DATE	PHOS- PHOSPHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHOSPHORUS ORTHOPHOSPHATE DIS- SOLVED (MG/L AS P)	PHOS- PHOSPHATE ORTHOPHOSPHATE DIS- SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)	SEDIMENT, CHARGE, SUS- PENDED (MG/L)	SEDIMENT, CHARGE, SUS- PENDED (T/DAY)	SEDIMENT, CHARGE, SUS- PENDED (T/DAY)	SEDIMENT, CHARGE, SUS- PENDED (T/DAY)
OCT, 1978										
17...	--	.01	.03	--	--	--	--	--	--	--
NOV										
28...	--	.01	.03	--	--	--	--	--	--	--
FEB, 1979										
27...	--	.01	.03	--	--	--	--	--	--	--
MAR										
27...	--	.00	.00	--	--	--	--	--	--	--
APR										
10...	.010	--	--	--	2.4	.2	7	22	97	
24...	--	.02	.06	--	--	--	--	--	--	--
MAY										
08...	.010	--	--	7.7	--	--	91	1620	68	
08...	--	.00	.00	--	--	--	--	--	--	--
JUN										
05...	.020	--	--	4.0	--	--	63	1240	70	
05...	.050	.00	.00	--	--	--	--	--	--	--
JUL										
24...	--	.04	.12	--	--	--	--	--	--	--
26...	.040	--	--	--	3.6	.3	8	18	71	
AUG										
21...	--	.01	.03	--	--	--	--	--	--	--
27...	.030	--	--	3.0	--	--	52	92	34	
SEP										
11...	--	.00	.00	--	--	--	--	--	--	--
27...	.000	--	--	3.5	--	--	6	10	91	

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDED RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDED RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT, 1978										
17...	1300	--	4	--	--	40	--	--	1	--
NOV										
28...	1330	--	2	--	--	30	--	--	<1	--
MAR, 1979										
27...	1245	--	5	--	--	0	--	--	0	--
APR										
10...	1030	7	8	0	0	40	0	0	<1	0
24...	1200	--	1	--	--	20	--	--	<1	--
MAY										
08...	1210	--	4	--	--	20	--	--	<1	--
JUN										
05...	1235	--	3	--	--	0	--	--	0	--
JUL										
24...	1245	--	8	--	--	0	--	--	0	--
26...	1115	11	8	0	0	60	1	0	<1	0
AUG										
21...	1230	--	11	--	--	60	--	--	<1	--
SEP										
11...	1215	--	7	--	--	40	--	--	0	--

DATE	CHROMIUM, SUS- PENDED RECOV- ERABLE (UG/L AS CR)	CHROMIUM, DIS- SOLVED (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDED RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDED RECOV- ERABLE (UG/L AS FE)
OCT, 1978							
17...	--	0	--	--	--	3	--
NOV							
28...	--	0	--	--	--	0	--
MAR, 1979							
27...	--	0	--	--	--	0	--
APR							
10...	0	10	0	0	<3	8	2
24...	--	0	--	--	--	1	--
MAY							
08...	--	0	--	--	--	1	--
JUN							
05...	--	20	--	--	--	0	--
JUL							
24...	--	0	--	--	--	1	--
26...	0	0	0	0	<3	7	2
AUG							
21...	--	0	--	--	--	1	--
SEP							
11...	--	0	--	--	--	4	--

OKANOGAN RIVER BASIN

12447200 OKANOGAN RIVER AT MALOTT, WA--Continued

WATER QUALITY DATA

DATE	IRON,	LEAD,	LEAD,	LEAD,	MANGA-	MANGA-	MANGA-	MERCURY	MERCURY	MERCURY
	DIS- SOLVED (UG/L AS FE)	TOTAL RECOV- ERABLE (UG/L AS PB)	SUS- PENDE RECOV- ERABLE (UG/L AS PB)		NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	NESE, SUS- PENDE RECOV- ERABLE (UG/L AS MN)	NESE, DIS- SOLVED (UG/L AS MN)	TOTAL RECOV- ERABLE (UG/L AS HG)	SUS- PENDE RECOV- ERABLE (UG/L AS HG)	
OCT. 1978										
17...	--	--	--	1	--	--	--	.0	--	--
NOV										
28...	--	--	--	3	--	--	--	.0	--	--
MAR. 1979										
27...	--	--	--	0	--	--	--	.0	--	--
APR										
10...	20	6	6	0	50	20	30	.1	.1	.0
24...	--	--	--	1	--	--	--	.0	--	--
MAY										
08...	--	--	--	3	--	--	--	--	--	--
JUN										
05...	--	--	--	0	--	--	--	.1	--	--
JUL										
24...	--	--	--	7	--	--	--	.4	--	--
26...	10	31	27	4	30	10	20	.2	.0	.2
AUG										
21...	--	--	--	4	--	--	--	.1	--	--
SEP										
11...	--	--	--	0	--	--	--	.4	--	--

DATE	SELE-	SELE-	SELE-	SILVER,	SILVER,	SILVER,	ZINC,	ZINC,	ZINC,
	NIUM, TOTAL (UG/L AS SE)	SUS- PENDE TOTAL (UG/L AS SE)	NIUM, DIS- SOLVED (UG/L AS SE)	TOTAL RECOV- ERABLE (UG/L AS AG)	SUS- PENDE RECOV- ERABLE (UG/L AS AG)		TOTAL RECOV- ERABLE (UG/L AS ZN)	SUS- PENDE RECOV- ERABLE (UG/L AS ZN)	
OCT. 1978									
17...	--	--	0	--	--	0	--	--	<3
NOV									
28...	--	--	1	--	--	0	--	--	10
MAR. 1979									
27...	--	--	0	--	--	0	--	--	10
APR									
10...	0	0	1	0	0	0	20	20	3
24...	--	--	0	--	--	0	--	--	<3
MAY									
08...	--	--	0	--	--	0	--	--	4
JUN									
05...	--	--	0	--	--	0	--	--	10
JUL									
24...	--	--	0	--	--	0	--	--	30
26...	0	0	0	0	0	0	30	20	9
AUG									
21...	--	--	0	--	--	0	--	--	<3
SEP									
11...	--	--	0	--	--	0	--	--	0

OKANOGAN RIVER BASIN

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12447200 OKANOGAN RIVER AT MALOTT, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE TIME	MAY 8.79 0855	JUN 5.79 0850	JUL 26.79 1115	AUG 27.79 1630	SEP 27.79 0815					
TOTAL CELLS/ML	540	300	2500	2100	1300					
DIVERSITY: DIVISION	0.7	0.9	1.7	1.1	1.7					
..CLASS	0.7	0.9	1.7	1.1	1.7					
...ORDER	1.1	1.2	2.3	0.0	2.5					
...FAMILY	1.4	1.6	2.5	0.0	2.9					
...GENUS	1.4	2.1	2.7	0.0	3.1					
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
..CHLOROPHYCEAE										
...CHLOROCOCCALES										
...CHLOROCOCCACEAE										
...CHLOROCOCCUM	--	--	--	--	63	3	13	1		
...ODCYSTACEAE					160	7	64	5		
...ANKISTRODESUS	--	--	--	--	800#	38	--	--		
...CHLONELLA	--	--	--	--	--	--	51	4		
...ODCYSTIS	--	--	--	--	160	7	--	--		
...SELENASTRUM										
...SCENEDESMACEAE	--	--	--	--	63	3	--	--		
...CRUCIGENIA	--	--	--	--	--	--	150	12		
...SCENEDESMUS	26	5	77#	26	80	3	--	--		
...TETRASPORALES										
...COCCOMYXACEAE										
...ELAKATOTHRIX	--	--	26	9	--	--	--	--		
..VOLVOCELES										
...CHLAMYDOMONADACEAE	--	--	--	--	120	5	31	1	64	5
...CHLAMYDOMONAS	--	--	--	--						
...VOLVOCEAE	410#	76	--	--	--	--	--	--	--	--
...PANDORINA										
...ZYGNEMATALES										
...DESMIDIACEAE	--	--	--	--	20	1	--	--	--	--
...COSMARIVUM										
CHRYSTOPHYTA										
..BACILLARIOPHYCEAE										
...CENTRALES										
...COSCINODISCEAE	--	--	--	--	920#	37	220	10	77	6
...CYCLOTETRA	26	5	--	--	--	--	--	--	51	4
...MELOSIRA										
...PENNALES										
...ACHNANTHACEAE	--	--	--	--	20	1	16	1	--	--
...ACHNANTHES	--	--	--	--	20	1	31	1	--	--
...COCCONEIS										
...CYMBELLACEAE	13	2	--	--	--	--	31	1	--	--
...CYMBELLA										
...FRAGILARIACEAE	--	--	51#	17	--	--	--	--	--	--
...ASTENIONELLA	26	5	120#	39	--	--	280	13	26	2
...FRAGILARIA	--	--	--	--	20	1	--	--	--	--
...SYNEDRA										
...GOMPHONEMACEAE	--	--	--	--	--	--	16	1	--	--
...GOMPHONEMA										
...NAVICULACEAE	--	--	--	--	--	--	190	9	13	1
...NAVICULA	26	5	--	--	--	--	--	--	--	--
...NITZSCHACEAE	13	2	26	9	300	12	190	9	26	2
...NITZSCHIA										
CRYPTOPHYTA (CRYPTOMONADS)										
..CRYPTOPHYCEAE	--	--	--	--	--	--	16	1	--	--
...CRYPTOMONADALES										
...CRYPTOCRYPTOPHYCEAE	--	--	--	--	60	2	16	1	77	6
...CRYPTOMONAS	--	--	--	--						
...CRYPTOMONADACEAE	--	--	--	--	40	2	--	--	39	3
...CRYPTOMONAS										
CYANOPHYTA (BLUE-GREEN ALGAE)										
..CYANOPHYCEAE										
...CHROOCOCCALES										
...CHROOCOCCACEAE	--	--	--	--	120	5	--	--	--	--
...AGMENELLUM	--	--	--	--	560#	23	--	--	180	14
...ANACYSTIS										
...HORMOGONIALES										
...OSCILLATORIA	--	--	--	--	--	--	--	--	460#	36
...OSCILLATORIA										
PYRRHOPHYTA (FIRE ALGAE)										
..PYRRHOPHYCEAE										
...PERIDINIALES										
...GLENODINIACEAE	--	--	--	--	20	1	--	--	--	--
...GLENODINIUM										

NOTE: * - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
 * - OBSERVED ORGANISM: MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

METHOW RIVER BASIN

12447374 METHOW RIVER BELOW GATE CREEK NEAR MAZAMA, WA

LOCATION.--Lat 48°37'46", long 120°27'50", in SW¼SW¼ sec.10, T.36 N., R.19 E., Okanogan County, Hydrologic Unit 17020008, at gate Creek campground 0.2 mi (0.3 km) downstream from Gate Creek, 2.5 mi (4.0 km) upstream from Early Winters Creek and 3.9 mi (6.3 km) northwest of Mazama, and at mile 69.8 (112.3 km).

PERIOD OF RECORD.--Water years 1975 to current year.

REMARKS.--Water discharge from rating; discharge value is good.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)
OCT + 1978							
18...	0910	286	90	7.4	7.0	0	2.0
NOV							
29...	0915	220	106	7.4	2.4	5	2.0
DEC							
13...	0930	E153	103	7.7	.0	0	1.0
MAR + 1979							
28...	0900	E176	107	7.7	3.2	15	.00
APR							
25...	0710	E440	110	7.7	4.5	10	1.0
MAY							
09...	0855	1550	85	7.7	5.4	15	2.0
JUN							
06...	0920	2010	70	7.6	6.3	25	1.0
JUL							
25...	0915	436	92	7.5	10.7	5	1.0
AUG							
22...	0830	83	110	7.3	10.5	5	4.0
SEP							
12...	0900	282	97	7.7	8.8	5	5.0

DATE	OXYGEN- DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P04)
OCT + 1978						
18...	10.2	.03	.02	.000	.00	.00
NOV						
29...	11.7	.05	.02	.000	.01	.03
DEC						
13...	13.0	.02	.01	.010	.00	.00
MAR + 1979						
28...	12.5	.12	.02	.000	.00	.00
APR						
25...	11.4	.07	.01	.000	.00	.00
MAY						
09...	11.5	.06	.01	.000	.00	.00
JUN						
06...	11.3	.03	.01	.010	.00	.00
JUL						
25...	8.8	.04	.01	.010	.00	.00
AUG						
22...	9.4	.04	.01	.000	.00	.00
SEP						
12...	9.7	.04	.01	.000	.00	.00

METHOW RIVER BASIN

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12447390 ANDREWS CREEK NEAR MAZAMA, WA
(Hydrologic bench-mark station)

LOCATION.--Lat 48°49'23", long 120°08'41", in NE¼ sec.1, T.38 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, Okanogan National Forest, on left bank 50 ft (15 m) upstream from Blizzard Creek, 3.5 mi (5.6 km) upstream from mouth, and 20 mi (32 km) northeast of Mazama.

DRAINAGE AREA.--22.1 mi² (57.2 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1968 to current year.

REVISED RECORDS.--WDR WA-76-2: 1975, WDR WA-77-2: 1976.

GAGE.--Water-stage recorder. Altitude of gage is 4,300 ft (1,310 m), from topographic map.

REMARKS.--Water-discharge records good. No regulation or diversion.

AVERAGE DISCHARGE.--11 years, 33.1 ft³/s (0.937 m³/s), 20.34 in/yr (517 mm/yr) 23,980 acre-ft/yr (29.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,120 ft³/s (31.7 m³/s) June 10, 1972, gage height, 4.00 ft (1.219 m) from rating curve extended above 440 ft³/s (12.5 m³/s); minimum, 1.2 ft³/s (0.034 m³/s) Nov. 4, 1968, Nov. 20, 1970, Apr. 7, 1975; minimum gage height, 0.27 ft (0.082 m) Mar. 25-29, Apr. 6, 7, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
May 25	1900	*279 7.90	*2.60 0.792

Minimum discharge, 2.9 ft³/s (0.082 m³/s) Apr. 20, gage height, 0.32 ft (0.098 m).DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	14	10	6.2	4.5	3.9	4.3	44	105	33	9.9	12
2	26	14	9.9	6.2	4.5	3.9	4.3	57	118	32	9.5	30
3	25	14	9.7	6.0	4.3	3.7	4.3	64	113	30	9.2	32
4	24	14	9.6	6.0	4.3	3.7	4.3	91	98	28	8.9	24
5	23	13	9.4	6.0	4.3	3.9	4.3	88	97	29	8.6	20
6	23	14	9.2	5.8	4.3	4.5	4.5	70	85	26	8.2	19
7	22	15	8.9	5.8	4.3	5.2	4.5	60	73	30	8.0	17
8	22	21	8.8	5.8	4.3	4.5	4.5	54	69	26	7.5	16
9	21	16	8.7	5.8	4.3	4.3	4.5	50	67	24	7.1	15
10	21	12	8.5	5.8	4.3	3.9	4.5	49	69	27	6.8	15
11	20	12	8.6	5.5	4.3	3.9	4.3	50	67	25	6.5	14
12	20	13	8.4	5.3	4.3	3.9	4.3	57	63	23	6.3	13
13	19	13	8.3	5.2	4.3	3.9	4.5	64	56	22	6.1	12
14	19	12	8.2	5.2	4.1	3.9	4.3	80	50	21	6.3	12
15	19	13	8.2	5.2	4.1	4.1	4.3	97	46	20	7.4	11
16	18	14	8.0	5.2	4.1	4.1	4.5	101	48	19	6.9	10
17	18	14	8.0	5.2	4.3	3.9	4.5	97	83	18	9.6	10
18	18	13	7.9	5.2	4.3	3.9	4.5	108	71	18	11	9.7
19	17	12	7.7	5.2	4.3	3.9	4.3	105	62	17	7.7	9.3
20	17	12	7.7	5.0	4.3	3.9	4.3	113	55	16	7.0	8.8
21	16	12	7.6	5.0	4.3	3.9	4.5	133	50	15	6.8	8.4
22	16	11	7.6	5.0	4.3	3.9	4.5	152	46	15	6.5	8.1
23	16	11	7.4	5.0	4.1	4.1	4.8	185	44	14	7.7	8.6
24	16	11	7.4	4.8	4.1	4.3	5.0	183	42	13	9.7	7.7
25	16	11	7.2	4.8	4.1	4.5	5.4	185	39	14	7.6	7.5
26	16	11	7.2	4.8	4.1	4.5	7.4	195	38	13	7.7	7.2
27	16	11	7.1	4.8	3.9	4.3	11	139	36	12	7.8	7.1
28	16	11	6.8	4.5	3.9	4.3	17	108	33	12	9.3	7.4
29	15	10	6.6	4.5	---	4.3	26	95	31	11	7.3	7.0
30	14	10	6.4	4.5	---	4.3	34	89	31	11	9.9	6.8
31	14	---	6.4	4.3	---	4.3	---	92	---	10	20	---
TOTAL	592	384	251.4	163.6	118.6	127.6	207.4	3055	1885	624	258.8	385.0
MEAN	19.1	12.8	8.11	5.28	4.24	4.12	6.91	98.5	62.8	20.1	8.35	12.8
MAX	26	21	10	6.2	4.5	5.2	34	195	118	33	20	32
MIN	14	10	6.4	4.3	3.9	3.7	4.3	44	31	10	6.1	6.8
CFSM	.86	.58	.37	.24	.19	.19	.31	4.46	2.84	.91	.38	.58
IN.	1.00	.65	.42	.28	.20	.21	.35	5.14	3.17	1.05	.44	.65
AC-FT	1170	762	499	325	235	253	411	6060	3740	1240	513	764

CAL YR 1978 TOTAL	14140.2	MEAN 38.7	MAX 388	MIN 2.4	CFSM 1.75	IN 23.60	AC-FT 28050
WTR YR 1979 TOTAL	8052.4	MEAN 22.1	MAX 195	MIN 3.7	CFSM 1.00	IN 13.55	AC-FT 15970

METHOW RIVER BASIN

12447390 ANDREWS CREEK NEAR MAZAMA, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)
OCT , 1978										
02...	1440	25	38	7.9	4.9	11.4	--	--	--	16
NOV										
07...	1300	14	40	7.4	1.8	12.2	12	1	1	17
DEC										
05...	1015	9.4	52	7.3	.7	12.2	<1	<1	<1	19
JAN , 1979										
03...	1300	6.0	55	7.3	.0	12.1	<1	--	<1	27
FEB										
21...	1225	4.3	58	7.3	.9	11.8	--	<1	<1	25
MAR										
13...	1330	3.9	58	7.6	1.3	12.3	--	<1	<1	26
APR										
11...	0930	4.3	55	7.6	1.2	12.1	<1	<1	1	24
MAY										
01...	1000	40	41	8.1	.3	11.3	21	<1	2	16
JUN										
04...	1630	98	36	8.3	5.6	10.7	--	<1	1	11
JUL										
09...	1400	25	41	7.5	9.4	9.5	<1	<1	<1	16
AUG										
08...	1045	7.4	61	7.4	8.5	9.7	26	<1	42	25
SEP										
05...	1000	21	41	8.1	6.8	10.1	13	<1	15	15

DATE	HARD- NESS, NONCAR- BONATE (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT , 1978										
02...	0	5.0	.8	1.6	18	.2	.4	18	3.0	.2
NOV										
07...	0	5.5	.9	1.9	19	.2	.4	24	3.5	.3
DEC										
05...	0	6.1	.9	1.9	17	.2	.5	25	2.9	.4
JAN , 1979										
03...	1	9.1	1.1	2.4	16	.2	.4	26	3.9	.4
FEB										
21...	0	7.9	1.2	1.5	11	.1	.5	25	2.1	.4
MAR										
13...	0	8.3	1.2	2.7	18	.2	.6	27	2.9	.2
APR										
11...	0	7.6	1.2	2.4	18	.2	.4	28	1.6	.2
MAY										
01...	1	5.1	.9	1.7	18	.2	.5	15	3.8	.5
JUN										
04...	1	3.2	.7	1.9	27	.3	.4	11	2.5	.2
JUL										
09...	0	5.1	.8	1.8	19	.2	.6	18	3.2	.3
AUG										
08...	0	8.3	1.0	2.4	17	.2	.6	26	7.2	.3
SEP										
05...	0	4.8	.7	1.8	19	.2	1.5	16	5.1	1.4

METHOW RIVER BASIN
12447390 ANDREWS CREEK NEAR MAZAMA, WA--Continued

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WATER QUALITY DATA

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 100 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)
OCT , 1978										
02...	.0	9.8	36	32	.05	2.43	.00	.010	1	.07
NOV										
07...	.1	9.9	33	37	.04	1.25	.01	.008	1	.04
DEC										
05...	.0	11	34	39	.05	.91	.09	.010	0	.00
JAN , 1979										
03...	.1	10	38	43	.05	.62	.05	.010	1	.02
FEB										
21...	.0	12	40	41	.05	.46	.10	.000	1	.01
MAR										
13...	.1	11	36	43	.05	.38	.07	.030	0	.00
APR										
11...	.1	11	42	41	.06	.49	.05	.000	1	.01
MAY										
01...	.1	9.0	34	31	.05	3.67	.10	.000	1	.11
JUN										
04...	.1	6.8	21	22	.03	5.56	.01	.010	2	.53
JUL										
09...	.1	10	27	33	.04	1.02	.02	.050	3	.20
AUG										
08...	.1	11	46	47	.06	.92	.04	.010	2	.04
SEP										
05...	.1	9.0	29	34	.04	1.64	.05	.030	3	.17

DATE	TIME	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS ALPHA, DIS- SOLVED (PCI/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	URANIUM DIS- SOLVED, EXTRAC- TION (UG/L)
FEB , 1979											
21...	1225	<.5	<.4	--	--	.4	<.4	.4	<.4	.07	.70
JUN											
04...	1630	<.4	<.4	<.3	<.3	.5	<.4	.5	<.4	.03	.24

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)
FEB , 1979							
21...	1225	0	0	1	10	1	0
JUN							
04...	1630	2	0	0	10	7	30

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
FEB , 1979							
21...	3	10	.0	0	0	0	.00
JUN							
04...	6	0	.1	0	0	10	.00

METHOW RIVER BASIN

12447390 ANDREWS CREEK NEAR MAZAMA, WA--Continued

WATER QUALITY DATA

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	OI- AZINON, TOTAL (UG/L)	OI- ELDRIN, TOTAL (UG/L)
JUN * 1979									
04...	1630	.0	.00	.0	.00	.00	.00	.00	.00

DATE	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	WALA- THION, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
JUN * 1979									
04...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN * 1979								
04...	.00	.00	.00	0	.00	.00	.00	.00

METHOW RIVER BASIN

125

12448998 TWISP RIVER NEAR TWISP, WA

LOCATION.--Lat 48°22'12", long 120°08'51", in SE¼SE¼ sec.12, T.33 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, on left bank, 20 ft (6.1 m) downstream from county road bridge, 0.8 mi (1.3 km) west of the Twisp city limits and at mile 1.6 (2.6 km).

DRAINAGE AREA.--245 mi² (635 km²).

PERIOD OF RECORD.--May 1975 to September 1979 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 1,640 ft (500 m) from topographic map.

REMARKS.--Records good except those during winter months, which are fair. No known regulation. Several diversions above station for irrigation. On Sept. 2, 1971, water diverted above station from Twisp River was measured at 61.5 ft³/s (1.74 m³/s) of which 32.9 ft³/s (0.93 m³/s) was carried by Twisp-Methow Valley Irrigation District Canal which diverts from right bank about 3.2 mi (5.1 km) west of Twisp city limits; most of the diverted water in this canal is used to irrigate land below the station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,130 ft³/s (88.6 m³/s) June 5, 1978, from rating curve extended above 1,500 ft³/s (42.5 m³/s), gage height, 11.62 ft (3.542 m); minimum, 17 ft³/s (0.48 m³/s), Sept. 13, 14, 15, 16, 17, 18, 1977, gage height, 7.02 ft (2.140 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 29, 1948 had a discharge of 9,440 ft³/s (267 m³/s), by slope-area measurement made about 1,000 ft (300 m) upstream from mouth.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,120 ft³/s (31.7 m³/s) May 23, gage height, 9.55 ft (2.911 m); minimum, 18 ft³/s (0.51 m³/s) Sept. 26-28, gage height, 6.57 ft (2.003 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	82	95	30	35	34	95	955	480	184	45	46
2	155	85	107	30	35	34	94	595	623	164	46	53
3	144	85	93	30	36	34	95	590	724	144	41	81
4	139	124	88	31	36	35	94	606	694	133	35	78
5	135	107	80	32	37	38	101	612	645	130	33	68
6	126	101	72	33	38	45	103	540	560	135	27	62
7	122	103	64	33	38	65	107	440	422	137	27	57
8	116	274	61	33	39	57	103	399	362	133	27	54
9	110	245	60	34	39	53	103	362	350	124	28	48
10	116	200	60	34	36	50	103	339	391	135	26	48
11	112	166	60	39	37	58	103	320	455	133	24	45
12	112	155	58	41	37	53	103	320	455	118	24	42
13	110	140	56	42	34	54	103	343	379	109	24	37
14	110	130	57	43	38	55	103	391	389	101	23	36
15	109	120	58	46	37	58	101	455	271	96	27	34
16	107	126	56	50	36	64	101	550	250	90	28	34
17	105	120	55	56	35	65	105	545	264	88	39	29
18	103	120	53	54	34	66	103	570	264	87	36	23
19	101	124	52	52	34	70	101	550	261	84	32	21
20	99	118	52	50	34	75	99	550	248	82	30	21
21	99	116	52	49	34	78	99	628	236	79	29	20
22	98	114	53	47	33	81	99	736	229	79	27	20
23	98	112	54	45	33	84	101	943	226	75	27	20
24	101	112	57	43	33	91	105	1030	220	68	28	20
25	101	109	55	42	34	99	109	950	220	66	28	20
26	98	105	50	41	35	101	120	1020	226	64	28	19
27	95	101	47	41	35	101	143	908	217	61	28	18
28	90	99	43	40	34	99	203	650	209	57	27	19
29	90	98	38	38	---	98	316	595	200	55	26	20
30	87	95	34	37	---	98	440	426	200	51	25	20
31	84	---	31	36	---	96	---	413	---	48	41	---
TOTAL	3428	3910	1851	1254	1002	2081	3759	17041	10598	3114	936	1113
MEAN	111	127	59.7	40.5	35.0	67.1	125	576	353	100	30.2	37.1
MAX	155	274	107	56	39	101	440	1030	724	184	46	81
MIN	84	82	31	30	33	34	95	320	200	48	23	10
AC-FT	6800	7560	3670	2490	1990	4130	7460	35390	21020	6100	1860	2210

CAL YR 1978 TOTAL 119231 MEAN 327 MAX 2670 MIN 31 AC-FT 236500
 WTR YR 1979 TOTAL 50787 MEAN 139 MAX 1030 MIN 10 AC-FT 100700

METHOW RIVER BASIN

12449510 METHOW RIVER NEAR TWISP, WA

LOCATION.--Lat 48°20'53", long 120°06'21", in SE¼NE¼ sec.21, T.33 N., R.22 E., Okanogan County, Hydrologic Unit 17020000. 1.3 mi (2.1 km) southeast of Twisp city limits, 2.2 mi (3.5 km) upstream from Beaver Creek and 3.0 mi (4.8 km) downstream from Twisp River.

PERIOD OF RECORD.--Water years 1976 to current year.

REMARKS.--Water discharge from rating; discharge value is good.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW (CFS)	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)
OCT * 1978							
18...	0730	--	536	131	7.0	8.0	5
NOV							
29...	0750	--	440	131	7.9	1.9	5
DEC							
13...	0745	--	275	155	7.6	.0	5
JAN * 1979							
24...	0800	270	--	138	7.8	.0	0
FEB							
28...	0745	250	--	153	7.8	2.5	10
MAR							
28...	0800	--	323	143	7.8	4.9	5
APR							
25...	0825	--	440	123	8.2	7.5	10
MAY							
07...	0735	--	2249	86	7.7	5.7	15
JUN							
08...	0800	--	2290	72	7.7	7.7	30
JUL							
25...	0810	--	393	133	7.4	15.0	10
AUG							
22...	0650	225	--	155	7.7	13.5	5
SEP							
12...	0800	--	339	140	7.7	10.8	10

DATE	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)
OCT * 1978							
18...	1.0	10.8	.12	.03	.000	.00	.00
NOV							
29...	2.0	12.9	.22	.01	.010	.00	.00
DEC							
13...	1.0	15.6	.18	.01	.020	.00	.00
JAN * 1979							
24...	1.0	--	.20	.02	.010	.01	.03
FEB							
28...	1.0	12.6	.18	.04	.020	.03	.09
MAR							
28...	1.0	12.1	.15	.01	.000	.00	.00
APR							
25...	1.0	11.7	.08	.01	.000	.00	.00
MAY							
07...	3.0	11.5	.06	.00	.000	.00	.00
JUN							
08...	1.0	11.3	.06	.02	.010	.01	.03
JUL							
25...	1.0	9.0	.15	.02	.010	.00	.00
AUG							
22...	1.0	8.6	.26	.00	--	.00	.00
SEP							
12...	1.0	10.0	.15	.01	.000	.01	.03

METHOW RIVER BASIN

127

12449950 METHOW RIVER NEAR PATEROS, WA

LOCATION.--Lat 48°04'39", long 119°59'02", in SE1/4SW sec.20, T.30 N., R.23 E., Okanogan County, Hydrologic Unit 17020008, on right bank 1.4 mi (2.3 km) downstream from Black Canyon Creek, 4.3 mi (6.9 km) northwest of Pateros, and at mile 6.7 (10.8 km).

DRAINAGE AREA.--1,772 mi² (4,589 km²).

PERIOD OF RECORD.--April 1959 to current year. Water temperatures October 1968 to October 1970.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 900 ft (274 m) from topographic map. Prior to Dec. 17, 1964, nonrecording gage at same site and datum.

REMARKS.--Records good except those for Dec. 8 to Mar. 22, which are poor. Diversions for irrigation of about 11,000 acres (45 km²) above station (1959 Bureau of Reclamation land classification).

AVERAGE DISCHARGE.--20 years, 1,592 ft³/s (45.09 m³/s), 1,153,000 acre-ft/yr (1,420 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,800 ft³/s (816 m³/s) May 31, 1972, gage height, 12.25 ft (3.734 m); minimum daily, 150 ft³/s (4.25 m³/s) Jan. 8, 9, 10, 1974, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since 1920, 46,700 ft³/s (1,320 m³/s) May 29, 1948, by slope-area measurement of peak flow at site 1 mi (1.6 km) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,670 ft³/s (161 m³/s) May 24, gage height, 5.62 ft (1.713 m); minimum daily, 274 ft³/s (7.76 m³/s) Aug. 13, 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1100	571	560	300	320	360	445	2710	2910	1330	402	455
2	1080	572	544	300	320	350	445	3150	3220	1260	388	476
3	1050	573	529	310	330	340	455	3270	3660	1190	379	598
4	1010	644	537	320	340	340	460	3410	3680	1090	361	773
5	977	675	511	330	340	340	470	3710	3480	1030	343	724
6	949	614	469	330	350	350	498	3510	3380	1030	325	661
7	923	605	438	330	360	420	514	3120	2880	1030	317	628
8	898	736	440	330	370	390	532	2810	2530	1140	309	592
9	868	1110	450	350	380	370	532	2560	2340	1080	297	556
10	839	986	460	370	360	360	530	2400	2340	1010	289	532
11	810	866	460	380	360	350	538	2270	2530	1030	285	504
12	790	790	450	380	370	350	532	2250	2630	970	281	476
13	770	785	430	380	370	350	544	2330	2440	986	274	460
14	759	737	440	380	380	360	538	2540	2170	858	274	440
15	746	702	450	390	360	360	532	2850	1980	808	277	420
16	731	724	440	400	350	370	532	3220	1800	766	289	406
17	711	755	430	410	340	380	550	3330	1870	717	309	388
18	693	766	420	410	340	370	550	3350	2120	696	330	374
19	681	733	410	420	320	370	538	3380	2000	675	334	361
20	668	674	420	430	320	380	526	3360	1900	647	338	348
21	657	644	430	440	320	390	514	3540	1780	616	334	330
22	650	630	440	450	320	405	520	3930	1690	604	325	325
23	642	634	430	440	330	410	526	4540	1640	580	321	321
24	641	623	480	430	340	415	538	5300	1600	550	334	313
25	654	617	460	410	340	435	550	5150	1560	532	338	309
26	636	603	440	400	340	445	586	5370	1550	514	338	309
27	623	593	420	390	370	455	675	5300	1510	498	338	297
28	618	585	390	370	380	460	914	4320	1460	481	338	297
29	612	574	360	360	---	460	1440	3610	1400	460	343	293
30	600	560	320	340	---	450	2140	3180	1360	445	338	293
31	581	---	300	330	---	445	---	2950	---	425	366	---
TOTAL	23967	20681	13758	11610	9720	12030	18672	186720	67330	25028	10114	13259
MEAN	773	669	444	375	347	388	622	3443	2244	807	326	442
MAX	1100	1110	560	450	380	460	2140	5370	3680	1330	402	773
MIN	581	560	300	320	340	340	445	2250	1360	425	274	293
AC-FT	47540	41020	27290	23030	19280	23860	37040	211700	133500	49640	20060	26300
CAL YR 1978 TOTAL	688521			1886		15000		1366000				
WTR YR 1979 TOTAL	332889			412		5370		660300				

METHOW RIVER BASIN

12449954 METHOW RIVER AT 2ND BRIDGE NEAR PATEROS, WA

LOCATION.--Lat 48°04'29", long 119°57'20", in NW¼NE¼ sec.28, T.30 N., R.23 E., Okanogan County, Hydrologic Unit 17020008, at bridge on State Highway 153, 1.7 mi (2.7 km) downstream from gaging station, 5.1 mi (5.0 km) downstream from Black Canyon Creek, 3.0 mi (4.8 km) west of Pateros, and at mile 5.0 (8.0 km).

DRAINAGE AREA.--1,777 mi² (4,602 km²).

PERIOD OF RECORD.--Water years 1959-1962, 1963-1970 (partial- record station), 1972, 1975 to current year.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is fair. Water temperature records collected October 1968 to October 1970 at gaging station 1.7 mi (2.7 km) upstream. Records prior to October 1974 published as 12449950 "Methow River near Pateros" at an erroneous location, but were actually obtained at the present site.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW (CFS)	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN- DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)
OCT . 1978										
17...	1210	--	712	160	8.2	16.6	5	0.0	11.6	68
NOV										
28...	1205	--	587	161	8.1	2.3	5	2.0	13.6	71
DEC										
12...	1215	450	--	172	8.0	.0	0	1.0	14.8	78
FEB . 1979										
27...	1025	370	--	190	8.1	4.1	0	1.0	12.6	80
MAR										
27...	1145	--	450	173	8.4	7.6	5	1.0	12.1	84
APR										
24...	1105	--	538	165	8.4	12.0	10	4.0	11.6	110
MAY										
08...	1115	--	2820	92	7.8	8.2	20	3.0	11.6	37
JUN										
05...	1125	--	3510	79	8.0	13.0	35	2.0	11.2	34
JUL										
24...	1145	--	556	158	8.4	29.2	10	1.0	8.7	73
AUG										
21...	1130	--	334	150	8.2	16.4	10	1.0	9.7	81
SEP										
11...	1125	--	498	170	8.3	14.9	10	1.0	10.8	77

DATE	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	RICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)
OCT . 1978										
17...	0	21	3.7	3.6	10	.2	.8	82	0	67
NOV										
28...	1	22	4.0	3.4	9	.2	.7	86	0	71
DEC										
12...	3	24	4.4	3.6	9	.2	.7	91	0	75
FEB . 1979										
27...	5	27	5.0	4.6	10	.2	.8	100	0	82
MAR										
27...	4	26	4.6	4.4	10	.2	.7	97	0	80
APR										
24...	15	31	6.8	6.7	14	.4	1.9	120	--	98
MAY										
08...	4	12	1.8	1.9	10	.1	.5	41	0	34
JUN										
05...	6	11	1.6	2.0	11	.2	.9	34	0	28
JUL										
24...	6	23	3.7	3.4	9	.2	1.0	81	0	66
AUG										
21...	4	25	4.4	4.1	10	.2	.9	93	0	76
SEP										
11...	6	24	4.1	3.9	10	.2	.8	--	--	71

METHOW RIVER BASIN

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12449954 METHOW RIVER AT 2ND BRIDGE NEAR PATEROS, WA--Continued

WATER QUALITY DATA

DATE	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE DIS- SOLVED (MG/L AS CL)	NITRO- GEN NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHOPHOS- PHATE DIS- SOLVED (MG/L AS P)	PHOS- PHATE ORTHOPHOS- PHATE DIS- SOLVED (MG/L AS P)	ARSENIC DIS- SOLVED (MG/L AS AS)
OCT * 1978									
17...	.8	4.2	1.8	.14	.01	.000	.00	.00	1
NOV									
28...	1.1	9.5	.5	.15	.01	.000	.01	.03	0
DEC									
12...	1.5	9.2	.0	.24	.01	.010	.02	.00	1
FEB * 1979									
27...	1.3	11	.7	.24	.02	.010	.00	.00	1
MAR									
27...	.6	7.4	.5	.10	.02	.000	.00	.00	1
APR									
24...	.8	29	1.9	.02	.05	.020	.01	.03	5
MAY									
08...	1.0	4.6	.4	.08	.00	.000	.00	.00	1
JUN									
05...	.5	4.6	.3	.03	.01	.030	.00	.00	1
JUL									
24...	.5	8.1	.6	.15	.01	.010	.05	.00	1
AUG									
21...	.9	12	.9	.21	.01	.000	.01	.03	2
SEP									
11...	--	10	.4	.15	.00	.030	.00	.00	2

DATE	BARIUM DIS- SOLVED (UG/L AS BA)	CAURIUM DIS- SOLVED (UG/L AS CA)	CHROMIUM DIS- SOLVED (UG/L AS CH)	COPPER DIS- SOLVED (UG/L AS CU)	LEAD DIS- SOLVED (UG/L AS PB)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM DIS- SOLVED (UG/L AS SE)	SILVER DIS- SOLVED (UG/L AS AG)	ZINC DIS- SOLVED (UG/L AS ZN)
OCT * 1978									
17...	20	<1	0	1	0	.0	0	0	<3
NOV									
28...	20	<1	10	0	5	.0	0	0	10
DEC									
12...	20	1	0	0	0	.0	1	0	4
FEB * 1979									
27...	0	0	0	2	2	.0	0	0	10
MAR									
27...	0	0	0	0	0	.0	0	0	0
APR									
24...	40	<1	0	1	5	.0	0	0	<3
MAY									
08...	10	<1	0	0	5	--	0	0	<3
JUN									
05...	0	0	10	0	0	.0	0	0	10
JUL									
24...	100	0	0	0	9	.4	0	0	10
AUG									
21...	40	<1	0	1	6	.0	0	0	3
SEP									
11...	30	0	20	5	0	.2	0	0	1

COLUMBIA RIVER MAIN STEM

12450700 COLUMBIA RIVER BELOW WELLS DAM, WA

LOCATION.--Lat 47°56'48", long 119°51'56", in SW¼SE¼ sec.6, T.28 N., R.24 E., Chelan County, Hydrologic Unit 17020005, at powerhouse of Wells Dam, 0.7 mi (1.1 km) northeast of Atwell, and at mile 515.9 (830.1 km).

DRAINAGE AREA.--86,100 mi² (223,000 km²), approximately.

PERIOD OF RECORD.--October 1967 to current year. October 1953 to September 1967 (monthly discharge only) on file in district office.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Bechtel Corporation). Prior to Oct. 1, 1970, at site 0.8 mi (1.3 km) downstream at same datum. Auxiliary water-stage recorder 6.8 mi (10.9 km) downstream from base gage at same datum.

REMARKS.--Records good. Discharge for Oct. 1-4 and Dec. 30 to Jan. 2 provided by N.P.D. Reservoir Control Center. Flow regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversion by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres (1,540 km²) in the United States and an additional 35,000 acres (142 km²) in Canada.

AVERAGE DISCHARGE.--26 years, 119,000 ft³/s (3,370 m³/s) 86,220,000 acre-ft/yr (106,000 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 402,000 ft³/s (11,400 m³/s) June 15, 1972; maximum elevation, 731.92 ft (223.089 m) June 16, 1972; minimum discharge, 17,900 ft³/s (507 m³/s) Oct. 5, 1970, elevation, 703.88 ft (214.543 m), from powerplant records.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 154,000 ft³/s (4,360 m³/s) Jan. 1; minimum daily discharge, 48,500 ft³/s (1,370 m³/s) Dec. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	117000	102000	91400	154000	110000	111000	92200	99100	114000	71900	97800	63100
2	120000	104000	79500	135000	142000	118000	111000	94900	78600	95300	99500	48600
3	112000	84200	82500	111000	143000	95500	125000	104000	88600	84900	100000	55000
4	118000	82900	94400	123000	124000	68100	91500	118000	112000	61500	78600	78000
5	104000	81800	132000	127000	130000	94100	98800	96500	102000	72600	53400	91500
6	137000	105000	122000	124000	109000	78500	106000	72100	99500	82500	93900	83900
7	84000	87900	106000	124000	118000	68400	111000	111000	104000	76400	86600	87900
8	96400	88800	102000	123000	113000	74500	101900	121000	111000	72500	84200	76100
9	109000	112000	83200	104000	118000	73300	115000	124000	81700	91600	100000	67600
10	91200	111000	85600	113000	86000	53600	110000	128000	72600	91200	94700	84100
11	85400	95700	100000	123000	75600	54500	96500	130000	115000	98500	85400	81100
12	86300	82800	104000	116000	94800	82600	114000	133000	111000	88500	73600	82600
13	90800	121000	181000	119000	82300	77000	134500	140000	116000	90700	93800	81200
14	74600	127000	94900	97500	96400	95700	91800	128000	103000	61900	93900	85400
15	88200	145000	110000	111000	103000	90700	71300	124000	97400	57200	87800	85800
16	91500	100000	93400	116000	110000	95900	106000	117000	69300	91400	78400	51100
17	94300	95900	80500	125000	92400	89500	116000	116000	60100	97300	82100	64500
18	94200	118000	88500	115000	83400	61800	138000	117000	95000	87200	71500	73800
19	96300	116000	100000	106000	106000	78100	109000	108000	93900	83400	54200	78100
20	98800	94300	100000	103000	111000	77600	76400	90700	99500	89500	84400	78800
21	86100	185000	87100	112000	123000	94400	57100	126000	86200	80400	90300	81700
22	73500	116000	87500	131000	118000	87300	67600	132000	92400	78900	92300	54600
23	97400	87000	78200	120000	119000	92200	102000	125000	72200	102000	87300	50600
24	82200	88700	61900	115000	115000	86400	101000	121000	71300	182000	98500	72200
25	87800	76700	69800	127000	75900	76100	82700	128000	103000	104000	65600	79500
26	91500	84300	93800	121000	103000	110000	84100	101000	106000	104000	64300	77600
27	95900	111000	110000	119000	111000	114000	74500	99800	90900	109000	94500	80400
28	79300	109000	128000	111000	99500	144000	71100	101400	104000	79600	88800	73000
29	82200	99900	125000	135000	---	88400	54700	126000	89400	80800	91700	66500
30	102000	92900	131000	120000	---	129000	97200	131000	72400	111000	90900	48700
31	119000	---	148000	114000	---	111000	---	116000	---	96100	88800	---
TOTAL	2949100	3017800	2977200	3698500	3007700	2763400	2855700	3579100	2804000	2691800	2642800	2163500
MEAN	95130	100600	96040	119300	107400	89140	95190	115500	93470	86630	85250	72120
MAX	120000	145000	148000	154000	143000	144000	145000	140000	116000	111000	100000	91500
MIN	73500	76700	48500	97500	75600	53600	57100	72100	60100	57200	53400	48600
AC-FT	5850000	5986000	5905000	7336000	5966000	5441000	5664000	7099000	5562000	5339000	5242000	4291000
CAL YR 1978 TOTAL	34106700	MEAN	107100	MAX	172000	MIN	47200	AC-FT	77560000			
WTR YR 1979 TOTAL	35150600	MEAN	96300	MAX	154000	MIN	48500	AC-FT	64720000			

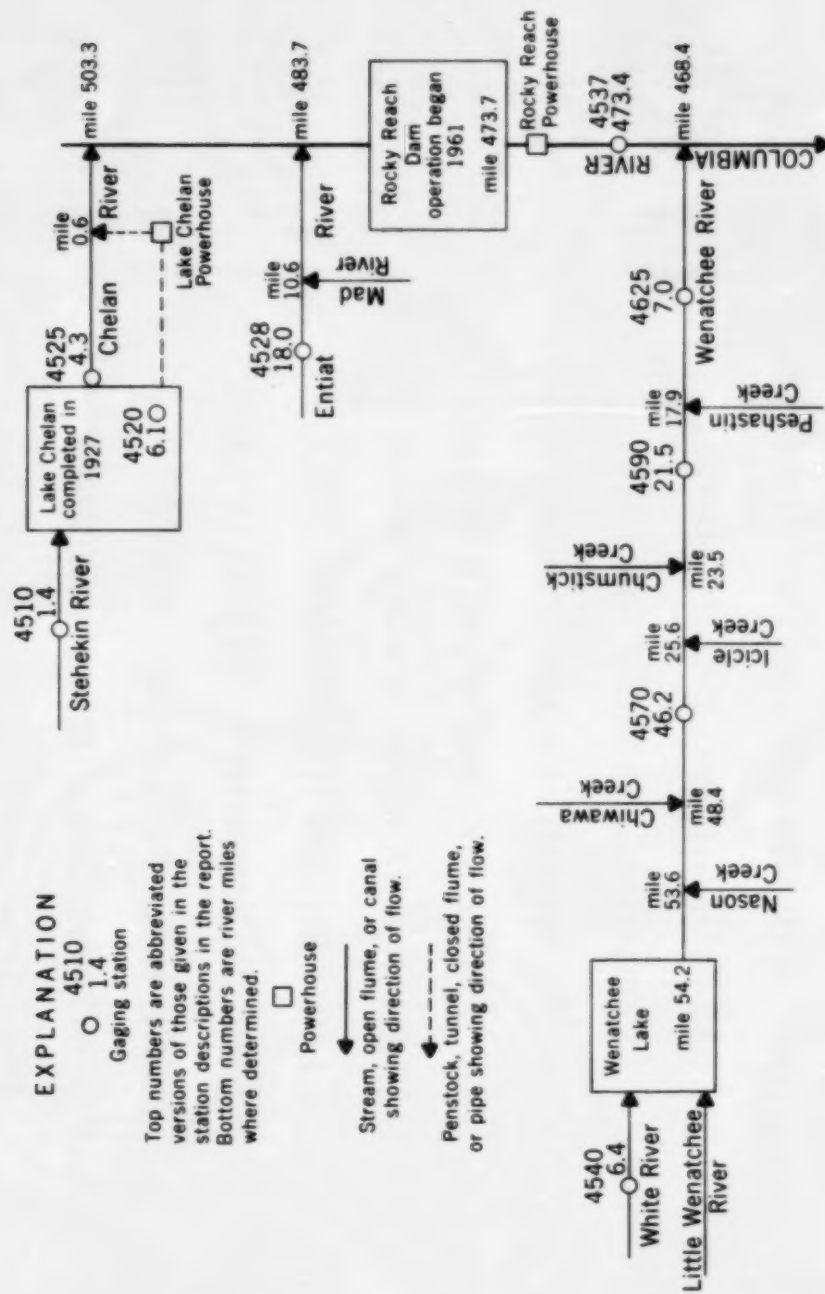


Figure 12. Gaging stations in Columbia River basin from Chelan to Wenatchee Rivers.

CHELAN RIVER BASIN

12451000 STEHEKIN RIVER AT STEHEKIN, WA

LOCATION.--Lat 48°19'47", long 120°41'26", in NE4SE4 sec.26, T.35 N., R.17 E., Chelan County, Hydrologic Unit 17020009, Lake Chelan National Recreation Area, on left bank 1,100 ft (335 m) upstream from Boulder Creek, 1.4 mi (2.3 km) upstream from Lake Chelan, and 2.1 mi (3.4 km) northwest of Stehekin.

DRAINAGE AREA.--321 mi² (831 km²), revised. Prior to 1979 published as 344 mi² (891 km²).

PERIOD OF RECORD.--October 1910 to October 1915, October 1926 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 412: 1914. WSP 1316: 1911(M), 1914-15(M). WSP 1446: 1912(M). WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,098.5 ft (334.82 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 17, 1911, nonrecording gage 0.4 mi (0.6 km) upstream from mouth at Lake Chelan at different datums (datum change made June 13, 1911). Aug. 17, 1911, to Oct. 31, 1915, nonrecording gage 0.2 mi (0.3 km) downstream from Boulder Creek at different datum.

REMARKS.--Records good. No known regulation or diversion.

AVERAGE DISCHARGE.--58 years, 1,420 ft³/s (40.21 m³/s) 60.07 in/yr (1,526 mm/yr) 1,029,000 acre-ft/yr (1,270 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,900 ft³/s (535 m³/s) May 29, 1948, gage height, 29.00 ft (8.839 m), from rating curve extended above 11,000 ft³/s (312 m³/s) on basis of slope-area measurement of peak flow; minimum, 56 ft³/s (1.59 m³/s) Jan. 21, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,500 ft³/s (184 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Nov. 8	0115	*6,980 198	*24.08 7.340

Minimum discharge, 124 ft³/s (3.51 m³/s) Feb. 2, gage height, 17.50 ft (5.334 m).

DISCHARGE IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	847	355	420	156	146	162	644	3950	2790	1800	1800	740
2	763	351	397	160	152	160	620	3950	3540	1400	1820	1060
3	769	398	388	170	165	160	592	3640	4030	1200	940	980
4	660	1460	462	180	160	160	587	3678	3890	1230	891	716
5	625	777	375	180	162	162	609	3710	3770	1600	870	644
6	596	664	355	180	170	244	638	3280	3170	1760	776	650
7	581	2240	335	170	193	465	650	2810	2290	1750	764	532
8	569	4080	351	170	167	505	656	2490	2040	1660	776	746
9	562	1970	351	180	162	433	668	2280	2160	1660	814	692
10	605	1390	347	180	165	429	674	2120	2720	1970	884	592
11	621	1100	351	190	162	420	674	2000	3230	1620	877	530
12	538	954	339	190	167	415	668	2000	3180	1490	863	510
13	584	851	307	200	170	415	668	2090	2650	1260	891	530
14	482	767	331	200	175	420	668	2460	2880	1220	956	576
15	473	731	328	200	170	442	656	2680	1760	1310	898	620
16	476	709	317	202	170	465	656	3030	1680	1430	835	620
17	489	674	310	202	170	475	656	2940	1850	1620	884	555
18	477	632	300	196	170	475	650	2980	1590	1690	800	581
19	468	603	289	196	170	475	638	2820	1670	1700	722	592
20	466	570	289	199	170	505	620	2740	1590	1830	740	844
21	453	540	286	202	167	535	614	2970	1530	1740	828	609
22	408	530	296	193	162	555	620	3610	1630	1460	926	540
23	390	515	296	190	162	598	656	4450	1740	1360	898	520
24	569	505	335	184	162	698	734	4660	1790	1320	814	515
25	443	485	307	172	162	758	849	4370	1970	1330	828	505
26	403	470	286	170	162	758	1040	4700	2140	1320	856	520
27	393	451	286	160	162	758	1440	4150	2180	1330	807	465
28	393	447	220	162	162	744	2240	3830	2110	1240	800	576
29	399	433	180	160	---	722	3160	2460	2360	1050	835	415
30	388	429	160	150	---	704	3660	2180	2200	996	849	406
31	362	---	150	150	---	674	---	2260	---	1080	782	---
TOTAL	16106	26081	9684	5588	4639	14893	27905	46340	71058	45446	26504	18261
MEAN	520	849	312	180	166	480	930	3108	2368	1466	856	609
MAX	847	4080	420	202	193	758	3860	4700	4038	1970	1088	1060
MIN	362	351	150	150	148	160	587	2008	1530	996	722	406
CFSM	1.62	2.71	.97	.56	.52	1.50	2.90	9.68	7.38	4.37	2.66	1.90
IN.	1.87	3.02	1.12	.65	.54	1.73	3.23	11.16	8.23	5.27	3.07	2.12
AC-FT	31950	51730	19210	11080	9200	29540	55350	191100	148980	98140	52570	36260

CAL YR 1978 TOTAL 540679 MEAN 1481 MAX 9628 MIN 150 CFSM 4.61 IN 62.86 AC-FT 1072000
 MTR YR 1979 TOTAL 362517 MEAN 993 MAX 4700 MIN 148 CFSM 3.09 IN 42.01 AC-FT 719180

CHELAN RIVER BASIN

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12452000 LAKE CHELAN AT CHELAN, WA

LOCATION.--Lat 47°50'11", long 120°03'37", near center of sec.15, T.27 N., R.22 E., Chelan County, Hydrologic Unit 17020009, on south shore of Lake Chelan at Lakeside, 2.1 mi (3.4 km) west of Chelan.

DRAINAGE AREA.--924 mi² (2,393 km²).

PERIOD OF RECORD.--September 1897 to December 1899, January to June 1905 and December 1910 to September 1911 (fragmentary gage heights only); October 1911 to current year. Records of change in contents prior to October 1911, published in WSP 482 and 492 in conjunction with records for Chelan River near Chelan, have been found to be unreliable and should not be used. Month-end contents October 1911 to September 1950 published in WSP 1316, chemical analyses June 1971 to August 1972.

REVISED RECORDS.--WSP 1246: 1951. WSP 1286: 1952. WSP 1933: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1912. To convert to National Geodetic Vertical Datum of 1929, subtract 1.73 ft (0.527 m). Prior to Jan. 1, 1900, nonrecording gage at Lakeside about 1 mi (1.6 km) west of Chelan at datum 1,070.18 ft (326.191 m) National Geodetic Vertical Datum of 1912. Jan. 1 to June 30, 1905, nonrecording gage at upper highway bridge at Chelan at different datum. Dec. 5, 1910, to Nov. 13, 1927, nonrecording gage at Forest Service boat landing at Chelan at datum 1,076.07 ft (327.986 m) National Vertical Datum of 1912.

REMARKS.--Reservoir is formed by low concrete dam at lake outlet completed Sept. 3, 1927. Usable capacity between elevations 1,079 (328.9 m) and 1,100 ft (335.3 m) 677,400 acre-ft (835 hm³). Regulation between these elevations is allowed by stipulation of the Federal Power Commission. Water is used for power development. Elevation of lake maintained between 1,092 (332.8 m) and 1,100 ft (335.3 m) during period Aug. 16 to Sept. 15 for scenic effect and recreational purposes. Diversions for irrigation of about 6,280 acres (25 km²) with an annual depletion of about 11,000 acre-ft (13.6 hm³), 1946 estimated.

COOPERATION.--Gage-height record collected in cooperation with Public Utility District No. 1 of Chelan County.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 1,100.08 ft (335.304 m) Aug. 7, 1976, Aug. 4, 1978 (affected by seiche action); maximum contents, 678,700 acre-ft (837 hm³) Aug. 4, 1978, elevation, 1,100.04 ft (335.292 m); minimum since completion of dam in 1927, 1,079.68 ft (329.086 m) Apr. 3, 4, 1937, Apr. 3, 1970, contents, 21,350 acre-ft (26.3 hm³); minimum elevation, 1,076.78 ft (328.203 m), Jan. 27, 28, Dec. 2-5, 1898.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,099.99 ft (335.277 m) July 28, contents, 677,000 acre-ft (835 hm³); minimum elevation, 1,082.91 ft (330.071 m) Apr. 9, contents, 123,700 acre-ft (153 hm³).

Capacity table (elevation in feet, and usable contents, in acre-feet)
(Based on data by the Pacific Northwest Coordination Agreement)

1,080	31,500	1,090	350,900	1,100	677,400
1,085	190,200	1,095	513,300		

ELEVATION, IN FEET NGVD, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1098.65	1096.16	1094.26	1091.00	1087.63	1085.21	1083.16	1084.37	1092.78	1098.44	1099.73	1098.77
2	1098.78	1096.04	1094.14	1090.86	1087.51	1085.12	1083.09	1084.72	1093.07	1098.52	1099.72	1098.76
3	1098.71	1095.96	1094.09	1090.74	1087.40	1085.02	1083.09	1085.08	1093.41	1098.58	1099.70	1098.78
4	1098.66	1096.02	1094.00	1090.61	1087.31	1084.93	1083.10	1085.33	1093.77	1098.66	1099.64	1098.77
5	1098.59	1095.94	1093.90	1090.50	1087.23	1084.96	1083.09	1085.67	1094.12	1098.79	1099.66	1098.72
6	1098.54	1095.84	1093.75	1090.37	1087.14	1084.80	1083.10	1086.00	1094.39	1098.89	1099.59	1098.64
7	1098.47	1095.82	1093.64	1090.24	1087.14	1084.76	1083.04	1086.26	1094.59	1099.00	1099.54	1098.58
8	1098.41	1096.04	1093.54	1090.13	1087.05	1084.66	1082.99	1086.48	1094.77	1099.09	1099.49	1098.53
9	1098.33	1096.05	1093.44	1090.01	1086.96	1084.59	1082.92	1086.71	1094.96	1099.16	1099.44	1098.47
10	1098.27	1095.99	1093.32	1089.95	1086.86	1084.51	1082.93	1086.88	1095.18	1099.29	1099.38	1098.37
11	1098.24	1095.92	1093.29	1089.84	1086.77	1084.43	1082.93	1087.03	1095.47	1099.38	1099.41	1098.27
12	1098.18	1095.85	1093.14	1089.72	1086.70	1084.35	1082.94	1087.22	1095.71	1099.46	1099.34	1098.18
13	1098.08	1095.80	1093.04	1089.61	1086.64	1084.27	1083.00	1087.39	1095.92	1099.50	1099.26	1098.08
14	1097.92	1095.70	1092.95	1089.50	1086.54	1084.20	1083.02	1087.56	1096.10	1099.51	1099.27	1098.00
15	1097.85	1095.64	1092.88	1089.39	1086.41	1084.14	1083.03	1087.77	1096.22	1099.53	1099.22	1097.92
16	1097.74	1095.59	1092.74	1089.25	1086.35	1084.09	1083.05	1088.06	1096.36	1099.58	1099.22	1097.86
17	1097.66	1095.52	1092.65	1089.15	1086.28	1083.99	1083.09	1088.33	1096.54	1099.63	1099.26	1097.77
18	1097.59	1095.41	1092.55	1089.05	1086.20	1083.92	1083.09	1088.59	1096.70	1099.72	1099.19	1097.67
19	1097.50	1095.31	1092.44	1088.92	1086.10	1083.86	1083.11	1088.83	1096.81	1099.78	1099.15	1097.59
20	1097.40	1095.24	1092.35	1088.83	1085.99	1083.80	1083.11	1089.06	1096.90	1099.85	1099.12	1097.51
21	1097.31	1095.15	1092.25	1088.75	1085.90	1083.73	1083.11	1089.32	1097.01	1099.89	1099.08	1097.47
22	1097.17	1095.09	1092.15	1088.67	1085.79	1083.67	1083.13	1089.64	1097.06	1099.84	1099.05	1097.38
23	1097.09	1095.00	1092.06	1088.55	1085.73	1083.60	1083.17	1090.02	1097.22	1099.85	1099.07	1097.26
24	1096.99	1094.90	1091.96	1088.48	1085.64	1083.57	1083.21	1090.51	1097.32	1099.84	1099.03	1097.20
25	1096.89	1094.80	1091.83	1088.38	1085.58	1083.52	1083.30	1090.87	1097.46	1099.87	1098.98	1097.13
26	1096.75	1094.70	1091.73	1088.27	1085.50	1083.46	1083.35	1091.36	1097.76	1099.89	1098.98	1097.08
27	1096.67	1094.62	1091.64	1088.18	1085.40	1083.40	1083.45	1091.70	1097.86	1099.95	1098.94	1096.95
28	1096.57	1094.51	1091.48	1088.08	1085.29	1083.37	1083.57	1091.99	1098.00	1099.96	1098.88	1096.90
29	1096.51	1094.41	1091.33	1087.95	---	1083.32	1083.79	1092.20	1098.20	1099.86	1098.84	1096.76
30	1096.37	1094.35	1091.20	1087.84	---	1083.27	1084.04	1092.37	1098.35	1099.79	1098.83	1096.68
31	1096.24	---	1091.10	1087.73	---	1083.22	---	1092.57	---	1099.74	1098.81	---
MEAN	1097.08	1095.45	1092.74	1089.31	1086.47	1084.12	1083.17	1088.38	1096.00	1099.45	1099.25	1097.87
MAX	1098.85	1096.16	1094.26	1091.00	1087.63	1085.21	1084.04	1092.57	1098.35	1099.96	1099.73	1098.78
MIN	1096.24	1094.35	1091.10	1087.73	1085.29	1083.22	1082.92	1084.37	1092.78	1098.44	1098.81	1096.68
†	551,600	489,300	383,900	276,100	198,800	132,600	165,000	437,500	626,700	669,500	636,500	566,300
‡	-86,600	-62,300	-105,400	-107,800	-77,300	-66,200	+32,400	+272,500	+189,200	+42,800	-33,000	-70,200
CAL YR 1978:	MEAN	1,095.10	MAX	1,099.94	MIN	1,083.35	†	+13,900				
WTR YR 1979:	MEAN	1,092.53	MAX	1,099.96	MIN	1,082.92	†	-71,900				

† Acre-feet, at 2400 hours, on last day of month.

‡ Change in contents, in acre-feet.

CHELAN RIVER BASIN

12452500 CHELAN RIVER AT CHELAN, WA

LOCATION.--Lat 47°50'05", long 120°00'43", in S4SE4 sec.13, T.27 N., R.22 E., Chelan County, Hydrologic Unit 17020009, near right bank in forebay upstream from control dam at outlet of Lake Chelan, 0.4 mi (0.6 km) south of Chelan, and at mile 4.3 (6.9 km).

DRAINAGE AREA.--924 m² (2,393 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1903 to current year. Published as "below Chelan Lake" 1904-05. Adjusted records for October 1903 to September 1911, published in WSP 482, 492, and 870 are unreliable and should not be used.

REVISED RECORDS.--WSP 482: 1904-13. WSP 612: 1924. WSP 1246: 1951. WSP 1286: 1952. WSP 1933: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder and concrete dam. Datum of gage is at mean sea level, datum of 1912. To convert to National Geodetic Vertical Datum of 1929, subtract 1.62 ft (0.494 m). Prior to Jan. 7, 1927, nonrecording gage at site 800 ft (244 m) downstream and Jan. 7 to Sept. 30, 1927, nonrecording gage about 500 to 1,000 ft (152 to 305 m) downstream at same datum. Oct. 1, 1927, to Nov. 10, 1928, nonrecording gage and Nov. 11, 1928, to Mar. 19, 1929, water-stage recorder at sites 2.5 mi (4.0 km) downstream at same datum.

REMARKS.--Water-discharge records good. Unmeasured water that is diverted for irrigation above station is a small percentage of total runoff. Chelan County Public District No. 1 diverts water at Chelan to develop about 40,000 KW and to irrigate 900 acres (3.6 km²) near Chelan. This quantity is included in records of daily discharge. Diversions for irrigation of about 6,280 acres (25 km²), depletion 11,000 acre-ft (13.6 hm³) 1964 estimate. Flow regulated by Lake Chelan (see sta 12452000).

COOPERATION.--Records of water used for power and irrigation furnished by the Public Utility District No. 1 of Chelan County.

AVERAGE DISCHARGE.--75 years (water years 1905-79), 2,057 ft³/s (58.25 m³/s) 30.23 in/yr (768 mm/yr), 1,490,000 acre-ft (1,840 hm³/yr), adjusted for storage since October 1911.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 18,400 ft³/s (521 m³/s) June 3, 1968; no flow part of day Jan. 30, 1917, when lake outlet was blocked with ice, and at other times owing to artificial regulation.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 2,650 ft³/s (75.05 m³/s) July 28; minimum daily, 12 ft³/s (0.34 m³/s) Apr. 28, May 1.

DISCHARGE IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1770	2040	2130	2050	2020	1730	1930	12	50	530	1590	1440
2	1760	2050	1740	2050	2020	1730	123	18	50	400	1420	1440
3	1760	2140	1810	2120	1720	1720	903	18	50	300	1400	1440
4	1780	2160	2120	2130	1760	1730	904	18	50	390	1420	1640
5	1770	2120	2170	2140	1740	1730	904	18	50	620	1420	1830
6	1770	2120	2120	2150	1760	1720	1330	18	50	820	1420	1830
7	1800	2140	2110	2140	1750	1760	2060	18	50	310	1420	1830
8	1800	2140	2160	2140	1760	1820	2070	18	50	430	1420	1840
9	1850	2140	2140	2150	1780	2070	1260	19	50	640	1420	1830
10	1990	2150	2130	2140	1770	2070	764	19	50	890	1430	1820
11	1990	2150	2120	2130	1760	2030	703	159	320	950	1440	1820
12	1970	2150	2120	2140	1760	2000	533	19	380	980	1460	1860
13	1970	2150	1990	2140	1750	1970	613	19	71	920	1450	1620
14	1950	2040	1990	2140	1750	1980	803	19	51	920	1440	1620
15	1960	2070	2100	2130	1750	1970	623	19	51	920	1440	1620
16	1950	2140	2110	2120	1750	1960	803	20	51	980	1450	1830
17	2010	2150	2120	2040	1750	1970	803	20	51	1020	1450	1820
18	2070	2130	2110	2120	1750	1980	803	20	221	1020	1450	1820
19	2080	2150	2100	1920	1750	1960	673	20	431	1020	1450	1810
20	2070	2150	2100	1700	1750	1960	603	50	360	1660	1450	1810
21	2100	2130	2100	1710	1740	1950	803	20	500	2540	1450	1810
22	2090	2130	2100	1700	1730	1830	263	20	500	1760	1460	1810
23	2080	2150	2100	1700	1730	1950	543	136	500	1010	1450	1810
24	2070	2150	2110	1700	1720	1940	33	46	50	970	1460	1860
25	2080	2150	2100	1700	1730	1950	282	46	500	1020	1450	1810
26	2050	2150	2100	1700	1740	1940	162	46	50	1010	1450	1810
27	2060	2130	2080	1700	1730	1940	562	46	20	1550	1440	1810
28	2070	2140	2160	1650	1720	1920	12	46	300	2650	1450	1810
29	2070	2140	2080	1700	---	1930	242	106	400	2010	1430	1900
30	2050	2110	2060	1700	---	1930	492	50	490	1810	1420	1810
31	2050	---	2070	1700	---	1930	---	50	---	1730	1440	---
TOTAL	60840	63860	64550	60450	49150	59080	22542	1153	5797	33780	44740	52810
MEAN	1963	2129	2082	1950	1755	1986	751	37.2	193	1090	1443	1760
MAX	2100	2160	2170	2150	2020	2070	2070	159	500	2650	1590	1900
MIN	1760	2040	1740	1650	1720	1720	12	12	20	300	1400	1440
AC-FT	120700	126700	128000	119900	97490	117200	44710	2290	11500	67000	88740	104700
†	-86,600	-62,300	-105,400	-107,800	-77,300	-66,200	+32,400	+272,500	+189,200	+42,800	-33,000	-70,200
MEAN†	555	1,082	368	197	364	829	1,296	4,469	3,573	1,786	907	580
CFSM†	0.60	1.17	.40	.21	.39	.90	1.40	4.84	3.65	1.93	.98	.63
IN.†	0.69	1.31	.46	.25	.41	1.04	1.57	5.58	4.07	2.23	1.13	.70
AC-FT†	34,100	64,400	22,600	12,100	20,190	51,000	77,110	274,800	200,700	109,800	55,740	34,500
CAL YR 1978:	TOTAL	812,251	MEAN	2,225	MAX	11,100	MIN	18	AC-FT	1,611,000		
DO.....	MEAN†	2,245	CFSM†	2.43	IN†	32.99	AC-FT†	1,625,000				
WTR YR 1979:	TOTAL	518,752	MEAN	1,421	MAX	2,650	MIN	12	AC-FT	1,029,000		
DO.....	MEAN†	1,322	CFSM†	1.43	IN†	19.43	AC-FT†	957,100				

† Change in contents, in acre-feet, in Lake Chelan.
‡ Adjusted for change in contents in Lake Chelan.

CHELAN RIVER BASIN

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12452500 CHELAN RIVER AT CHELAN, WA --Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1962-1972, 1975 to current year.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALY UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)
OCT , 1978									
17...	1100	2010	54	7.3	15.3	5	1.0	10.1	.01
NOV									
28...	1120	2140	51	7.5	7.0	5	1.0	11.3	.03
DEC									
12...	1130	2120	51	7.7	5.3	0	2.0	12.0	.05
JAN , 1979									
23...	1045	1700	50	7.9	2.1	0	3.0	12.3	.05
FEB									
27...	0940	1730	55	7.4	3.8	5	1.0	12.5	.05
MAR									
27...	1100	1940	50	7.7	8.2	5	1.0	11.8	.04
APR									
24...	1015	33	52	7.7	12.5	5	5.0	11.6	.06
MAY									
08...	1025	18	52	7.7	15.3	10	2.0	9.4	.03
JUN									
05...	1045	50	53	7.8	21.0	30	2.0	9.7	.02
JUL									
24...	1050	970	52	7.4	22.3	10	1.0	8.3	.03
AUG									
21...	1050	1450	40	7.6	21.2	5	1.0	8.5	.02
SEP									
11...	1045	1820	52	8.1	19.7	5	1.0	9.6	.01

DATE	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS PO4)
OCT , 1978								
17...	.03	.22	.25	.26	1.2	.010	.01	.03
NOV								
28...	.02	.09	.11	.14	.62	.000	.00	.00
DEC								
12...	.01	.76	.77	.82	3.6	.020	.00	.00
JAN , 1979								
23...	.00	.16	.16	.21	.93	.000	.00	.00
FEB								
27...	.01	.03	.04	.09	.40	.010	.01	.03
MAR								
27...	.03	.10	.13	.17	.75	.000	.00	.00
APR								
24...	.04	.35	.39	.45	2.0	.010	.00	.00
MAY								
08...	.01	.01	.02	.05	.22	.010	.00	.00
JUN								
05...	.03	.19	.22	.24	1.1	.020	.00	.00
JUL								
24...	.01	2.3	2.3	2.3	10	.010	.00	.00
AUG								
21...	.02	.04	.06	.08	.35	.000	.01	.03
SEP								
11...	.01	.25	.26	.27	1.2	.010	.00	.00

ENTIAT RIVER BASIN

12452800 ENTIAT RIVER NEAR ARDENVOIR, WA

LOCATION.--Lat 47°49'07", long 120°25'19", in NE¼NE¼ sec.27, T.27 N., R.19 E., Chelan County, Hydrologic Unit 17020010, on left bank 0.5 mi (0.8 km) downstream from Stormy Creek, 6.0 mi (9.7 km) northwest of Ardenvoir, and at mile 18.0 (29.0 km).

DRAINAGE AREA.--203 mi² (526 km²).

PERIOD OF RECORD.--September 1957 to current year. Water temperatures July 1968 to September 1970.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,560.97 ft (475.784 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for Dec. 27 to Jan. 19 and June 12 to Aug. 23, which are fair. No regulation or diversion.

AVERAGE DISCHARGE.--22 years, 385 ft³/s (10.90 m³/s) 25.76 in/yr (654 mm/yr), 278,900 acre-ft/yr (344 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,430 ft³/s (182 m³/s) June 10, 1972, gage height, 8.98 ft (2.737 m); minimum daily, 25 ft³/s (0.71 m³/s) Dec. 17, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,580 ft³/s (44.8 m³/s) May 26, gage height, 4.97 ft (1.515 m); minimum daily discharge, 37 ft³/s (1.05 m³/s) Jan. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193	96	111	37	54	56	128	653	785	300	100	110
2	105	95	102	38	57	55	126	747	952	250	170	136
3	178	102	104	40	58	59	125	781	1100	200	160	211
4	171	249	110	46	60	58	128	861	1120	220	150	153
5	165	157	92	48	61	64	138	897	1130	280	140	125
6	158	142	63	50	60	95	143	834	982	310	130	119
7	153	152	62	50	60	127	146	748	795	300	130	112
8	148	253	87	50	62	110	145	679	715	290	130	107
9	144	210	99	50	62	98	144	630	705	290	140	111
10	140	181	95	52	63	92	143	617	740	350	150	103
11	136	160	97	54	62	92	142	597	790	280	140	97
12	132	156	94	56	63	94	143	608	800	260	140	91
13	130	152	79	60	67	95	142	643	700	220	150	87
14	127	136	85	62	63	97	139	711	660	220	160	85
15	124	140	95	64	58	104	137	799	550	230	150	85
16	122	163	98	64	62	113	140	894	500	250	140	85
17	119	171	95	64	60	110	140	916	480	270	150	84
18	116	161	91	64	60	108	136	945	480	290	130	80
19	115	143	80	64	59	108	133	936	500	300	120	78
20	113	134	70	67	58	111	131	937	440	310	120	78
21	110	134	75	69	58	114	131	1020	420	280	130	80
22	107	124	80	64	58	117	133	1160	420	250	150	77
23	106	132	92	64	58	121	137	1400	440	240	130	74
24	114	127	97	63	58	134	143	1480	450	230	118	73
25	107	124	81	60	59	146	151	1450	460	230	112	71
26	103	113	65	57	62	146	171	1500	440	230	121	70
27	102	117	52	61	62	146	212	1380	430	230	124	69
28	101	117	47	54	58	143	302	1080	420	200	117	73
29	103	115	42	54	---	139	450	886	450	180	108	72
30	98	114	40	52	---	135	545	765	350	170	111	66
31	95	---	38	52	---	131	---	740	---	180	115	---
TOTAL	4015	4370	2518	1732	1682	3318	5124	28294	19144	7840	4216	2862
MEAN	130	146	81.2	55.9	60.1	107	171	913	638	253	136	95.4
MAX	193	253	111	69	67	146	545	1500	1130	350	180	211
MIN	95	95	38	37	54	55	125	597	350	170	108	66
CFSM	.64	.72	.40	.28	.30	.53	.84	4.50	3.14	1.25	.67	.47
IN.	.74	.80	.46	.32	.31	.61	.94	5.18	3.51	1.44	.77	.52
AC-FT	7960	8670	4990	3440	3340	6580	10160	56120	37970	15550	8360	5680

CAL YR 1978 TOTAL 171681 MEAN 470 MAX 3630 MIN 38 CFSM 2.32 IN 31.46 AC-FT 340500
WTH YR 1979 TOTAL 85115 MEAN 233 MAX 1500 MIN 37 CFSM 1.15 IN 15.60 AC-FT 168800

ENTIAT RIVER BASIN

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12452990 ENTIAT RIVER NEAR ENTIAT, WA

LOCATION.--Lat 47°39'48", long 120°14'58", in NW¼SE¼ sec.18, T.25 N., R.21 E., Chelan County, Hydrologic Unit 17020010, at road bridge 1.2 mi (1.9 km) west of Entiat High School and at mile 1.4 (2.3 km).

DRAINAGE AREA.--419 mi² (1,085 km²).

PERIOD OF RECORD.--Water years 1959-70, 1972, 1975 to current year.

REMARKS.--Water discharge from rating; discharge value is good. Prior to October 1974 published as 12453000. Prior to September 1970 samples taken at site 1.7 mi (2.7 km) upstream.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)
OCT - 1978							
17...	1020	140	95	7.6	8.2	10	2.0
NOV							
28...	1030	143	64	7.7	1.5	10	1.0
DEC							
12...	1035	116	97	7.4	.2	5	2.0
JAN - 1979							
23...	1000	77	102	7.6	.0	0	5.0
FEB							
27...	0845	63	108	7.4	1.5	5	1.0
MAR							
27...	1015	246	94	8.2	5.0	8	3.0
APR							
24...	0930	940	95	8.5	10.0	10	6.0
MAY							
08...	0950	905	54	7.5	5.7	20	3.0
JUN							
05...	1010	1450	37	7.5	10.2	35	3.0
JUL							
24...	1010	223	71	7.8	17.1	10	2.0
AUG							
21...	1005	21	90	8.0	16.3	5	1.0
SEP							
11...	1000	104	98	8.4	12.5	15	2.0

DATE	OXYGEN, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)
OCT - 1978						
17...	12.3	.10	.02	.010	.00	.00
NOV						
28...	14.5	.12	.02	.000	.01	.03
DEC						
12...	15.0	.15	.01	.020	.00	.00
JAN - 1979						
23...	14.2	.21	.00	.010	.01	.03
FEB						
27...	13.7	.15	.01	.020	.01	.03
MAR						
27...	13.4	.02	.02	.000	.00	.00
APR						
24...	12.0	.02	.05	.010	.01	.03
MAY						
08...	11.9	.08	.00	.010	.00	.00
JUN						
05...	11.7	.03	.02	.010	.00	.00
JUL						
24...	9.0	.08	.07	.010	.00	.00
AUG						
21...	8.7	.13	.00	.000	.01	.03
SEP						
11...	11.3	.23	.12	.010	.00	.00

COLUMBIA RIVER MAIN STEM

12453700 COLUMBIA RIVER AT ROCKY REACH DAM, WA

LOCATION.--Lat 47°31'28", long 120°18'04", in SW¼NW¼ sec.2, T.25 N., R.20 E., Chelan County, Hydrologic Unit 17020010, on right bank 0.5 mi (0.8 km) downstream from Rocky Reach Dam, 1.5 mi (2.4 km) downstream from Swakane Creek, 7.4 mi (11.9 km) north of Wenatchee, and at mile 473.4 (761.7 km).

DRAINAGE AREA.--87,800 mi² (227,400 km²), approximately.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Auxiliary water-stage recorder, 1.9 mi (3.1 km) downstream from base gage at same datum.

REMARKS.--Records fair. Discharge for Oct. 3, Nov. 18-30, Dec. 3, 9-13, 15, 17, 24 and 25, Jan. 29-31, Feb. 1-9, Mar. 20, 22, 23, and May 1 to Sept. 30 was provided by Corps of Engineers W.P.D. Reservoir Control Center. Flow regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversion by Feeder Canal for Columbia Basin project (see sta 12455500) and for irrigation of about 380,000 acres (1,540 km²) in the United States and an additional 35,000 acres (142 km²) in Canada.

AVERAGE DISCHARGE.--19 years, 117,800 ft³/s (3,336 m³/s) 85,350,000 acre-ft/yr (105,200 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 535,000 ft³/s (15,200 m³/s) June 10, 1961, elevation, about 635.50 ft (193.700 m); minimum daily, 25,100 ft³/s (711 m³/s) Nov. 11, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 160,000 ft³/s (4,530 m³/s) Jan. 1; minimum daily, 50,600 ft³/s (1,430 m³/s) Sept. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1960 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116000	113000	98000	160000	110000	109000	95500	102000	120000	71500	101000	67100
2	120000	109000	86200	133000	139000	118000	111000	91000	79400	160000	101000	52200
3	114000	87900	66200	113000	143000	99000	124000	105000	85500	88900	105000	53500
4	118000	85300	101000	122000	122000	81200	90000	122000	120000	64200	85100	80600
5	108000	81800	103000	124000	132000	103000	103000	100000	103000	76700	55200	93400
6	113000	104000	116000	125000	116000	85700	103000	75900	101000	83600	98600	89200
7	85600	84600	114000	123000	121000	77100	115000	112000	104000	80800	88800	92600
8	95300	80300	105000	120000	114000	83200	104000	120000	111000	76100	88100	79700
9	111000	113000	85500	102000	112000	76100	111000	121000	85000	61700	101000	73300
10	88200	114000	90100	110000	92800	62200	107000	128000	77000	93400	96000	85500
11	85100	99100	107000	119000	84200	70700	94200	132000	112000	99500	87000	86400
12	91300	81700	107000	114000	96000	87600	112000	134000	108000	80500	75800	84000
13	60800	111000	105000	121000	80000	75200	107000	140000	115000	92500	96400	82100
14	76100	137000	96700	101000	98500	96200	92500	130000	104000	87900	96800	86900
15	83300	150000	113000	109000	104000	92900	82000	125000	98900	60100	91300	65400
16	93100	96000	98200	111000	111000	96800	103000	122000	71000	94200	89500	50600
17	98900	95700	54600	126000	95200	97800	111000	112000	62000	101000	81700	65600
18	96100	124000	95600	114000	87800	74900	107000	118000	97000	86900	73400	74900
19	97800	119000	108000	102000	109000	82500	109000	111000	95700	85700	57900	80400
20	106000	98100	106000	105000	109000	80700	81900	97300	102000	92800	86800	79900
21	85600	111000	96000	112000	120000	103000	63700	124000	84700	83600	90400	84800
22	71300	120000	93700	133000	116000	92600	81900	137000	92900	82000	94200	57900
23	93600	90400	90300	120000	119000	97400	101000	127000	76300	105000	91300	57000
24	82800	92000	66500	110000	114000	93900	99500	119000	72400	108000	89900	75200
25	83600	79000	73600	125000	83800	88700	82200	122000	105000	108000	68300	62500
26	93300	89000	99700	120000	104000	116000	83200	105000	108000	106000	84900	77900
27	103000	116000	110000	109000	111000	112000	76600	102000	108000	108000	98100	84100
28	77300	110000	117000	108000	106000	147000	77100	103000	97300	81900	92900	73300
29	86700	106000	121000	134000	---	104000	72500	125000	91700	85700	93400	69500
30	104000	99600	134000	125000	---	107000	97200	133000	75200	109000	94400	53300
31	128000	---	143000	115000	---	111000	---	117000	---	94700	88200	---
TOTAL	2990800	3099100	3101700	3661000	3060900	2923400	2897100	3613000	2859900	2774700	2715500	2239000
MEAN	96480	103300	100100	118100	109300	94300	96570	116500	95300	89510	87600	74630
MAX	128000	150000	143000	160000	143000	147000	124000	140000	120000	189000	106000	93400
MIN	71300	79000	54600	101000	83800	62200	63700	75900	62000	60100	55200	50600
AC-FT	5932000	6147000	6152000	7462000	6071000	5799600	5746000	7164000	5671000	5504000	5306000	4441000
CAL YR 1978	TOTAL	39868700	MEAN	109200	MAX	172000	MIN	50600	AC-FT	79080000		
WTR YR 1979	TOTAL	35935100	MEAN	98450	MAX	160000	MIN	50600	AC-FT	71280000		

WENATCHEE RIVER BASIN

139

12454000 WHITE RIVER NEAR PLAIN, WA

LOCATION.--Lat 47°52'27", long 120°52'09", in NE¼NE¼ sec.5, T.27 N., R.16 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, on left bank 200 ft (61 m) downstream from Forest Service bridge, 1.2 mi (1.9 km) downstream from Sears Creek, 12.5 mi (20.1 km) northwest of Plain, and at mile 6.4 (10.3 km).

DRAINAGE AREA.--150 mi² (388 km²).

PERIOD OF RECORD.--May 1911 to April 1912, May to September 1912 (monthly discharge only), July to August 1913, October 1913 to March 1914 (monthly discharge only), April to September 1914, August 1954 to current year. Published as "near Chiwaukum" 1911-14. Water temperatures October 1970 to June 1971.

REVISED RECORDS.--WSP 1316: 1914.

GAGE.--Water-stage recorder. Datum of gage is 1,981.92 ft (573.609 m) National Geodetic Vertical Datum of 1929. May 1911 to September 1914, nonrecording gage at same site at different datum.

REMARKS.--Records good except those for Nov. 17 to Feb. 19, which are fair. No regulation or diversion.

AVERAGE DISCHARGE.--27 years (water years 1912, 1914, 1955-79). 607 ft³/s (22.85 m³/s), 73.06 in/yr (1,856 mm/yr), 584,700 acre-ft/yr (721 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,690 ft³/s (167 m³/s) June 17, 1974, gage height, 13.56 ft (4.133 m); maximum gage height, 13.87 ft (4.228 m) June 2, 1968; minimum discharge, 49 ft³/s (1.39 m) Mar. 1, 1979, gage height, 2.20 ft (0.671 m), result of freezeup upstream of gage.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,500 ft³/s (99.1 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
May 24	0030	*2,970 84.1	*9.34 2.847

Minimum discharge, 49 ft³/s (1.39 m³/s) Mar. 1, gage height, 2.20 ft (0.671 m), result of freezeup upstream of gage.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	449	148	206	74	80	75	397	1970	1610	988	593	294
2	380	145	195	74	82	75	377	2030	2080	765	479	670
3	349	350	198	74	86	78	360	1980	2340	691	442	589
4	324	800	220	76	86	84	366	2170	2290	892	404	351
5	300	520	193	78	92	136	393	2120	2280	964	384	274
6	279	442	178	76	100	231	428	1840	1770	996	343	291
7	266	1200	160	76	115	566	418	1820	1310	944	321	271
8	259	2000	170	76	110	580	431	1370	1220	912	327	327
9	253	1000	170	88	105	428	437	1280	1360	908	337	327
10	270	635	170	82	100	382	436	1200	1690	1190	365	254
11	250	538	170	84	98	384	430	1150	1930	868	372	207
12	228	495	165	86	94	399	422	1200	1820	792	362	199
13	214	449	140	86	96	406	433	1250	1400	691	378	205
14	209	424	150	86	96	411	418	1420	1120	684	404	234
15	246	392	170	84	90	432	402	1580	1020	734	365	254
16	209	348	160	82	88	450	397	1780	1050	784	343	251
17	212	350	150	80	86	433	394	1660	930	638	372	231
18	296	340	150	80	86	429	386	1690	996	835	324	237
19	198	330	140	82	84	417	379	1590	1090	810	291	242
20	196	360	140	86	83	435	371	1580	980	817	386	254
21	185	280	147	90	82	455	386	1880	1000	799	352	242
22	167	270	151	96	80	470	415	2170	1060	687	394	211
23	162	260	144	94	79	503	464	2710	1120	653	378	199
24	239	250	194	90	80	568	526	2670	1170	622	324	199
25	178	240	164	88	85	598	611	2570	1270	598	318	199
26	162	238	160	86	91	574	741	2710	1340	585	327	202
27	157	228	145	84	90	551	684	2300	1370	585	372	177
28	155	215	120	82	80	518	1350	1500	1290	547	324	254
29	167	205	100	82	---	482	1710	1260	1300	483	330	170
30	155	200	85	82	---	452	1880	1140	1160	452	340	160
31	148	---	75	82	---	421	---	1250	---	483	386	---
TOTAL	7142	13576	4866	2558	2522	12431	17142	34580	42516	23500	11187	7875
MEAN	230	452	157	82.5	80.1	401	571	1761	1417	758	361	266
MAX	449	2000	220	96	115	598	1880	2710	2340	1190	593	670
MIN	148	145	75	74	79	75	360	1140	920	452	291	160
CFSM	1.53	3.02	1.05	.55	.60	2.67	3.01	11.7	9.45	5.05	2.41	1.77
IN.	1.77	3.37	1.21	.63	.63	3.00	4.25	13.54	10.54	5.63	2.77	1.98
AC-FT	14170	26930	9650	5070	5080	24660	34000	108300	84330	46630	22190	15820

CAL YR 1978	TOTAL	MEAN	MAX	MIN	CFSM	IN	AC-FT
1978	268702	736	4200	75	4.91	66.64	533000
WTR YR 1979	TOTAL	MEAN	MAX	MIN	CFSM	IN	AC-FT
1979	200003	548	2710	74	3.65	49.60	396700

WENATCHEE RIVER BASIN

12457000 WENATCHEE RIVER AT PLAIN, WA

LOCATION.--Lat 47°45'47", long 120°39'54", in NE1/4 sec.12, T.26 N., R.17 E., Chelan County, Hydrologic Unit 17020011, on left bank 300 ft (91 m) downstream from county road bridge at Plain, 0.5 mi (0.5 km) downstream from Beaver Creek, 2.2 mi (3.5 km) downstream from Chiwawa River, 11.3 mi (18.2 km) north of Leavenworth, and at mile 46.2 (74.3 km).

DRAINAGE AREA.--591 mi² (1,531 km²).

PERIOD OF RECORD.--October 1910 to September 1979 (discontinued). Published as "near Leavenworth" 1910-31.

REVISED RECORDS.--WSP 482: 1911-14. WSP 1316: 1914(M), 1916(M), 1919(M), 1921-23(M), 1927(M).

GAGE.--Water-stage recorder. Altitude of gage is 1,805 ft (550.2 m), from river-profile map. Prior to Jan. 8, 1932, nonrecording gages at site 0.2 mi (0.3 km) downstream at different datum.

REMARKS.--Records excellent except those for Dec. 20 through Feb. 11, which are fair. Wenatchee Park Land and Irrigation Company diverts water from the Chiwawa River, above the station for irrigation of 1,400 acres (5.6 km²) near Plain. Natural regulation by Wenatchee Lake 8.0 mi (12.9 km) upstream.

AVERAGE DISCHARGE.--69 years, 2,249 ft³/s (63.69 m³/s), 51.68 in/yr (1,313 mm/yr [1,629,000 acre-ft/yr (2,010 km³/yr)].

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,700 ft³/s (643 m³/s) May 29, 1948, gage height, 12.43 ft (3.789 m), from high-water mark in well; minimum, 168 ft³/s (4.76 m³/s) Nov. 30, 1952, gage height, 1.31 ft (0.399 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,130 ft³/s (230 m³/s) May 26, 27, gage height, 7.27 ft (2.216 m); minimum daily discharge, 350 ft³/s (9.91 m³/s) Dec. 31-Jan. 2.

DISCHARGE IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1140	916	767	350	395	453	1400	5910	4470	2900	924	669
2	1000	510	730	350	400	437	1340	6190	5420	2570	916	753
3	990	567	706	355	415	432	1290	6260	6510	2230	893	1100
4	930	1010	780	360	430	453	1300	6390	6970	2090	851	972
5	886	1900	755	370	450	524	1390	6830	6940	2150	816	844
6	844	1570	668	360	480	784	1490	6580	6500	2260	774	774
7	812	1540	584	360	500	1260	1510	5770	5110	2240	746	711
8	777	2930	637	370	540	1630	1520	5040	4320	2100	710	683
9	750	2600	654	390	550	1650	1550	4550	4140	2130	697	669
10	741	2170	644	405	560	1560	1540	4220	4390	2330	704	669
11	722	1780	671	415	560	1480	1520	3960	4990	2310	718	620
12	690	1540	646	420	530	1460	1490	3940	5290	2070	697	578
13	666	1360	550	420	550	1410	1510	4080	4810	1870	704	544
14	647	1190	598	410	552	1380	1520	4430	4040	1700	732	532
15	633	1000	660	405	520	1380	1470	4880	3460	1620	753	528
16	620	1110	647	400	514	1420	1450	5530	3240	1590	732	530
17	605	1120	613	405	505	1400	1470	5780	3100	1620	781	514
18	598	1070	583	420	506	1380	1430	5710	2860	1650	767	508
19	592	1010	546	435	492	1360	1390	5570	2950	1630	725	502
20	584	937	510	452	479	1350	1350	5350	2860	1610	711	508
21	566	895	560	475	470	1380	1360	5610	2820	1680	697	514
22	562	864	610	502	458	1410	1410	6280	2830	1580	718	490
23	546	835	617	472	448	1470	1500	7310	2890	1360	767	472
24	590	811	610	460	453	1590	1600	7950	2940	1290	739	454
25	608	790	610	450	466	1750	1800	7980	3860	1220	704	448
26	570	761	590	440	466	1700	2000	7990	3230	1170	697	448
27	551	746	570	430	483	1760	2540	7840	3270	1130	704	430
28	534	762	535	420	474	1710	3360	6490	3230	1110	697	448
29	506	769	470	415	---	1630	4460	5120	3240	1040	683	460
30	504	787	390	410	---	1550	5330	4330	3110	956	690	430
31	526	---	350	400	---	1470	---	4110	---	924	676	---
TOTAL	21474	34461	18873	12726	13664	40703	54370	177740	122990	54070	23131	17808
MEAN	693	1215	609	411	488	1313	1812	5734	4180	1744	746	594
MAX	1140	2930	780	502	560	1780	5330	7990	6970	2900	924	1100
MIN	526	910	350	390	395	432	1290	3940	2820	924	676	430
CFSM	1.17	2.06	1.03	.70	.83	2.22	3.07	9.70	6.94	2.95	1.26	1.01
IN	1.35	2.30	1.19	.80	.86	2.56	3.42	11.19	7.74	3.48	1.46	1.12
AC-FT	42590	72320	37430	25240	27100	80730	107800	352500	244000	107200	45800	35320

CAL YR 1978 TOTAL 839332 MEAN 2306 MAX 12600 MIN 350 CFSM 3.89 IN 52.83 AC-FT 1665000
WTR YR 1979 TOTAL 594010 MEAN 1627 MAX 7990 MIN 350 CFSM 2.75 IN 37.39 AC-FT 1178000

WENATCHEE RIVER BASIN

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12457800 WENATCHEE RIVER NEAR LEAVENWORTH, WA

LOCATION.--Lat 47°40'25", long 120°34'00", T.25 N., R.17 E. (unsurveyed), Chelan County, Hydrologic Unit 17020011, at U.S. Highway 2 bridge 0.4 mi (0.6 km) upstream from Hatchery Creek, 6 mi (9.7 km) northwest of Leavenworth, and at mile 35.6 (57.3 km).

DRAINAGE AREA.--672 mi² (1,740 km²).

PERIOD OF RECORD.--Water years 1959-70, 1977 to current year.

REMARKS.--Water discharge from rating; discharge value is good.

COOPERATION.--Temperature dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW (CFS)	STREAM- FLOW INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)
OCT + 1978							
17...	0900	--	588	40	7.7	8.7	10
NOV							
28...	0900	--	858	40	7.3	1.5	10
DEC							
12...	0920	--	648	41	7.5	.0	10
JAN + 1979							
23...	0830	500	--	44	7.1	.0	5
FEB							
26...	1510	490	--	48	7.9	.0	10
MAR							
27...	0900	--	2290	39	7.6	3.5	5
APR							
24...	0820	--	3290	41	7.4	6.0	15
MAY							
08...	0845	--	5720	35	7.3	5.5	20
JUN							
05...	0905	--	7490	25	7.5	9.0	30
JUL							
24...	0850	--	1700	33	7.4	16.4	10
AUG							
21...	0845	--	374	35	7.4	16.3	5
SEP							
11...	0900	--	514	37	7.8	12.8	14

DATE	TUR- BID- ITY (NTU)	OXYGEN- DIS- SOLVED (MG/L)	NITRO- GEN- NO ₂ +NO ₃ TOTAL (MG/L AS N)	NITRO- GEN- AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS- TOTAL (MG/L AS P)	PHOS- PHORUS- ORTH- DIS- SOLVED (MG/L AS P)	PHOS- PHATE- ORTH- DIS- SOLVED (MG/L AS PO ₄)
OCT + 1978							
17...	2.0	11.0	.01	.00	.010	.00	.00
NOV							
28...	2.0	13.4	.06	.02	.000	.00	.00
DEC							
12...	1.0	14.0	.00	.01	.030	.01	.03
JAN + 1979							
23...	2.0	13.3	.00	.02	.010	.00	.00
FEB							
26...	1.0	13.4	.07	.01	.010	.01	.03
MAR							
27...	1.0	12.6	.08	.05	.000	.00	.00
APR							
24...	31	12.3	.00	.01	.000	.02	.06
MAY							
08...	2.0	11.6	.12	.00	.000	.00	.00
JUN							
05...	3.0	11.1	.00	.03	.010	.00	.00
JUL							
24...	1.0	8.7	.04	.01	.010	.01	.03
AUG							
21...	1.0	8.5	.02	.00	.000	.01	.03
SEP							
11...	1.0	9.5	.04	.04	.000	.00	.00

LOCATION.--Lat 47°35'00", long 120°36'40", in SE¼SW¼ sec. 8, T.24 N., R.18 E., Chelan County, Hydrologic Unit 17020001, on right bank, 1.0 mi (1.6 km) northwest of Peshastin, 3.5 mi (5.6 km) upstream from Peshastin Creek, 4.1 mi (6.6 km) downstream from Icicle Creek, and at mile 21.5 (34.6 km).

PERIOD OF RECORD.--October 1928 to February 1929 (monthly discharge only), March 1929 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,028.04 ft (313.347 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 24, 1932, nonrecording gage at site 1.2 mi (1.9 km) downstream at different datum.

AVERAGE DISCHARGE.--51 years, 3,112 ft³/s (88.13 m³/s), 2,255,000 acre-ft/yr (2,780 hm³/yr).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,900 ft³/s (309 m³/s) May 26, 27, gage height, 8.52 ft (2.597 m); minimum, 458 ft³/s (13.0 m³/s) Sept. 27, 28, gage height, 1.76 ft (0.536 m).

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1500	668	992	440	470	601	1850	7790	6090	3770	1130	750
2	1430	656	944	440	460	581	1790	8010	7330	3360	1110	880
3	1330	696	984	460	470	562	1730	8150	8670	2860	1060	1200
4	1250	2230	1000	480	480	579	1710	8360	9250	2610	1000	1000
5	1180	2470	1010	480	490	655	1810	8890	9150	2680	950	980
6	1120	1990	878	470	510	1000	1940	8560	8530	2030	891	813
7	1060	1870	766	470	530	1670	2000	7560	6050	2820	840	790
8	1010	3500	908	490	570	2300	2010	6080	5820	2750	803	760
9	976	3470	848	500	600	2290	4020	4050	5580	2650	770	740
10	950	2790	834	520	670	2090	2030	5600	5930	2940	807	710
11	931	2230	856	540	700	1930	1990	5260	6780	2970	832	650
12	895	1930	843	550	700	1910	1960	5250	7160	2650	817	630
13	868	1740	780	550	700	1860	1970	5370	6490	2380	806	600
14	834	1520	822	540	710	1830	1980	6040	5450	2100	837	575
15	814	1400	867	530	720	1830	1930	6730	4610	2000	879	565
16	795	1440	870	520	720	1890	1910	7560	4290	2050	850	571
17	779	1480	783	530	710	1870	1920	7670	4090	2070	910	560
18	760	1430	767	500	700	1830	1870	7720	3770	2120	935	545
19	751	1330	720	570	690	1810	1820	7540	3840	2080	864	567
20	741	1230	660	590	680	1800	1770	7270	3750	2040	856	533
21	741	1180	720	620	670	1820	1760	7720	3730	2000	820	539
22	727	1130	758	630	670	1860	1800	8580	3720	1980	826	521
23	707	1070	778	620	670	1820	1900	9060	3790	1750	809	523
24	727	1040	800	600	670	2080	2040	10800	3830	1620	860	502
25	788	1010	800	570	680	2300	2290	10500	3940	1540	819	492
26	734	961	790	550	680	2360	2060	10800	4200	1460	801	487
27	707	942	760	550	660	2330	3290	10500	4240	1410	800	471
28	693	980	710	540	627	2250	4410	8610	4180	1360	790	467
29	692	975	600	520	---	2140	5960	8950	4170	1310	780	440
30	703	960	510	500	---	2030	7140	5890	4050	1200	790	540
31	682	---	470	480	---	1930	---	5580	---	1130	760	---
TOTAL	27867	46319	26748	16440	17607	53900	71260	238050	163330	68590	26870	19380
MEAN	899	1544	798	530	629	1730	2375	7679	5444	2213	867	605
MAX	1590	3500	1010	630	720	2300	7140	10800	9250	2770	1130	1200
MIN	682	650	470	460	460	562	1710	5250	3720	1130	760	467
4C-FT	55270	91870	49090	32610	34920							

CAL YR 1978	TOTAL	1135619	MEAN	3111	MAX	17200	MIN	470	AC-FY	2252000
MTD YR 1979	TOTAL	774373	MEAN	2122	MAX	10800	MIN	460	AC-FY	1530000

WENATCHEE RIVER BASIN

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12462500 WENATCHEE RIVER AT MONITOR, WA

LOCATION.--Lat 47°29'58", long 120°25'24", in NE¼SW¼ sec.11, T.23 N., R.19 E., Chelan County, Hydrologic Unit 17020011, on right bank 1.0 mi (1.6 km) north of Monitor, 3.5 mi (5.6 km) downstream from Mission Creek, and at mile 7.0 (11.3 km).

DRAINAGE AREA.--1,301 mi² (3,370 km²).

PERIOD OF RECORD.--August to November 1897, October 1962 to current year. Published as "near Wenatchee" 1897.

GAGE.--Water-stage recorder. Altitude of gage is 680 ft (207 m), from topographic map. Aug. 7 to Nov. 7, 1897, nonrecording gage 1 mi (1.6 km) downstream at different datum.

REMARKS.--Records excellent except those for Dec. 31 through Feb. 24, which are fair. No regulation. Diversions for irrigation of about 25,000 acres (100 km²) above station.

AVERAGE DISCHARGE.--17 years, 3,376 ft³/s; (95.61 m³/s) 2,440,000 acre-ft/yr (3,020 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,200 ft³/s (827 m³/s) Dec. 4, 1975, gage height, 27.14 ft (8.272 m); minimum, 362 ft³/s (10.3 m³/s) Sept. 4, 5, 6, 1973, gage height, 16.98 ft (5.176 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,600 ft³/s (329 m³/s) May 24, 27, gage height, 22.70 ft (6.919 m); minimum, 428 ft³/s (12.1 m³/s) Sept. 26, 27, 28, gage height, 17.11 ft (5.215 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1590	797	1160	540	650	702	2110	8410	6200	3750	962	643
2	1520	785	1110	540	650	682	2020	8690	7480	3360	962	678
3	1430	809	1060	540	670	670	1950	8860	8940	2850	920	1080
4	1340	2180	1140	560	710	685	1910	9050	9620	2560	870	1170
5	1260	2800	1180	560	750	767	2040	9680	9530	2580	813	973
6	1190	2250	1040	550	780	1170	2190	9330	8940	2720	759	808
7	1160	2940	868	580	820	2030	2310	8180	7140	2740	705	786
8	1090	3520	951	570	850	2670	2310	7190	5960	2680	660	696
9	1040	3830	1000	590	860	2600	2290	6460	5650	2580	626	660
10	1010	3100	971	610	870	2380	2250	5980	5940	2800	634	678
11	993	2510	1010	630	880	2200	2160	5600	6800	2940	669	651
12	957	2150	1010	640	880	2190	2130	5500	7200	2800	669	680
13	957	1960	877	650	880	2140	2140	5670	6610	2350	651	559
14	992	1710	840	650	860	2110	2130	6370	5680	2130	678	519
15	969	1560	1000	640	840	2130	2070	7110	4700	1990	741	503
16	948	1600	978	620	810	2220	2070	6050	4320	1950	732	503
17	933	1440	948	630	790	2200	2100	8180	4160	1950	768	511
18	914	1630	897	660	780	2130	2040	8210	3810	1990	822	495
19	901	1520	831	640	760	2080	1970	8050	3820	1950	768	487
20	888	1410	760	730	750	2070	1920	7710	3770	1980	759	487
21	882	1360	830	770	730	2100	1930	8160	3710	1870	732	495
22	875	1300	913	800	710	2140	1940	9110	3640	1800	723	495
23	849	1250	932	780	700	2220	2040	19400	3770	1840	777	480
24	859	1210	909	750	710	2380	2170	11500	3790	1490	777	465
25	927	1180	960	730	728	2630	2410	11380	3940	1400	732	458
26	882	1130	948	700	749	2690	2800	11400	4160	1320	705	438
27	851	1100	909	680	748	2660	3470	11200	4200	1270	705	431
28	830	1140	851	680	736	2560	4630	9160	4160	1240	687	431
29	822	1150	842	670	---	2440	6380	7290	4100	1180	643	472
30	840	1120	880	680	---	2320	7660	6190	4040	1070	634	480
31	819	---	550	650	---	2280	---	5720	---	984	651	---
TOTAL	31499	51661	29746	22040	21611	62174	77438	253080	165840	65634	22934	18176
MEAN	1016	1722	927	646	772	2006	2501	8190	5520	2117	740	606
MAX	1590	3830	1180	800	880	2690	7660	11500	9620	3750	962	1170
MIN	819	785	550	540	650	678	1900	5560	3640	984	626	431
AC-FT	62480	102500	57020	39750	42870	123300	153600	503600	328000	130200	45400	36050

CAL YR 1978 TOTAL 1246316 MEAN 3415 MAX 10600 MIN 550 AC-FT 2472000
WTR YR 1979 TOTAL 819624 MEAN 2246 MAX 11500 MIN 431 AC-FT 1626000

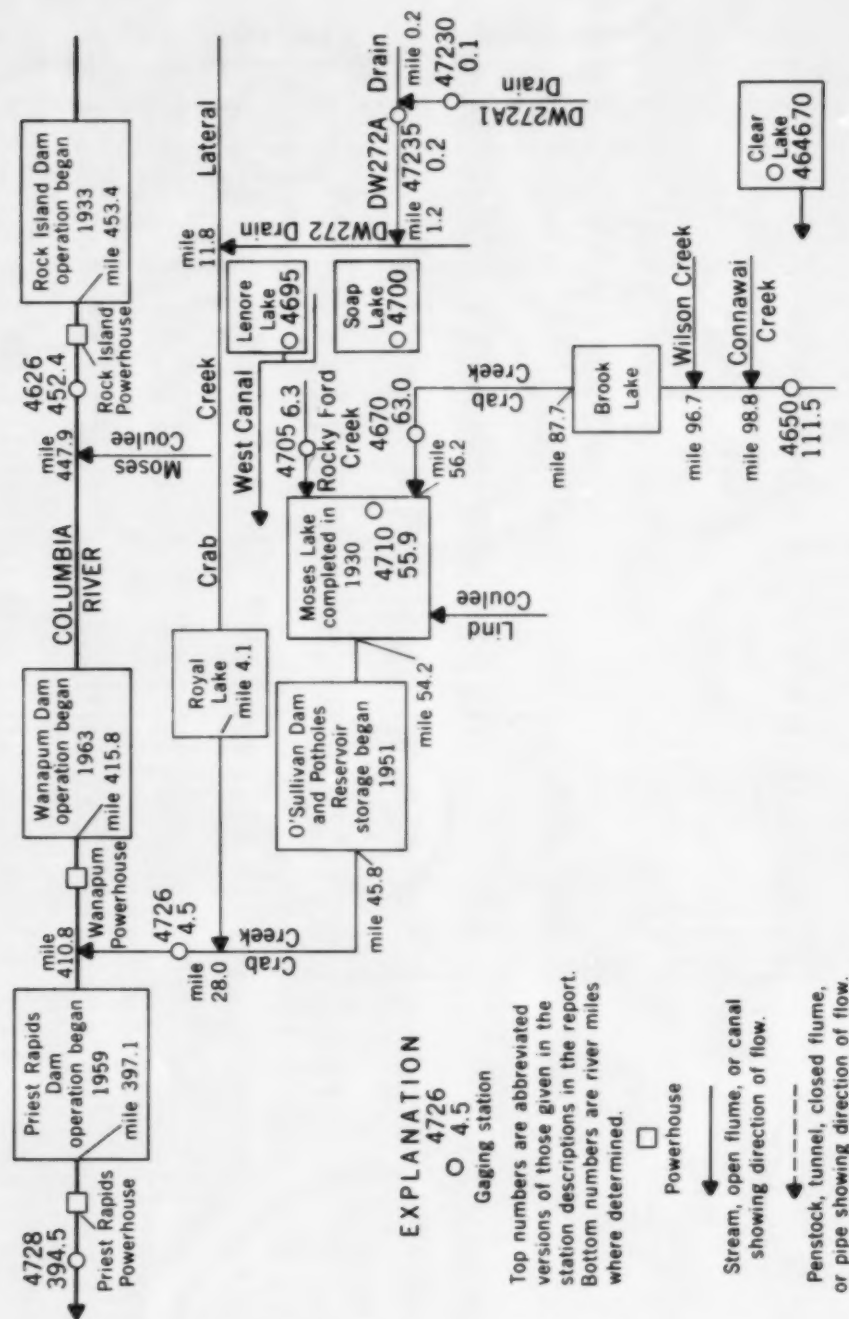


Figure 13. Gaging stations in Columbia River basin from Rock Island Dam to Priest Rapids gage.

WENATCHEE RIVER BASIN

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12462520 WENATCHEE RIVER AT WENATCHEE, WA

LOCATION.--Lat 47°27'32", long 120°20'07", in SE¼NW¼ sec.28, T.23 N., R.20 E., Chelan County, Hydrologic Unit 17020011, at bridge on U.S. Highway 2, 1.3 mi (2.1 km) north of Wenatchee, and at mile 1.1 (1.8 km).

DRAINAGE AREA.--1,327 mi² (3,437 km²).

PERIOD OF RECORD.--Water years, 1960-63, 1964-66 (partial-record station), 1967-70, 1972, 1975 to current year.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is good.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS)	pH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN- DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CaCO3)	HARD- NESS- NONCAR- BONATE (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)
OCT + 1978											
17...	0800	940	79	7.1	9.2	10	2.0	11.0	33	0	6.9
NOV											
20...	0750	1120	81	7.9	1.6	10	1.0	13.5	--	--	--
DEC											
12...	0745	1000	76	7.3	.0	5	2.0	14.7	30	0	6.2
FEB + 1979											
26...	1405	744	83	7.3	.5	10	3.0	13.5	36	2	7.6
MAR											
27...	0800	2660	65	7.7	4.7	10	2.0	12.5	27	1	6.1
APR											
24...	0720	2140	68	7.7	0.3	15	7.0	12.4	28	0	5.9
MAY											
08...	0740	7350	50	7.3	7.0	20	2.0	11.6	16	1	3.6
JUN											
05...	0800	9500	34	7.7	11.1	40	3.0	11.0	14	2	3.4
JUL											
24...	0730	1520	40	7.3	17.5	10	1.0	6.0	19	0	4.6
AUG											
21...	0800	741	67	7.5	17.2	10	1.0	7.0	29	0	6.3
SEP											
11...	0800	660	83	7.7	14.0	15	2.0	9.1	33	1	7.1

DATE	MAGNE- SIUM- DIS- SOLVED (MG/L AS MG)	SODIUM- DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM- DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LITY (MG/L AS CaCO3)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT + 1978										
17...	3.0	2.6	14	.2	1.3	43	0	35	5.5	4.5
NOV										
20...	--	--	--	--	--	--	0	--	--	5.2
DEC										
12...	3.4	2.1	13	.2	.9	37	0	30	3.0	3.5
FEB + 1979										
26...	4.2	3.6	17	.3	1.1	42	0	34	3.4	6.0
MAR										
27...	2.9	2.5	16	.2	.8	32	0	26	1.0	6.8
APR										
24...	3.1	2.0	13	.2	1.0	33	--	27	1.1	3.2
MAY										
08...	1.0	1.1	13	.1	.9	18	0	15	1.4	2.9
JUN										
05...	1.3	1.1	13	.1	1.6	15	0	12	.5	3.3
JUL										
24...	1.9	1.5	14	.1	1.2	23	0	19	1.0	4.2
AUG										
21...	3.2	2.2	23	.2	.5	35	0	29	1.8	3.0
SEP										
11...	3.7	2.9	10	.2	.0	39	--	32	1.2	6.7

WENATCHEE RIVER BASIN

12462520 WENATCHEE RIVER AT WENATCHEE, WA--Continued

WATER QUALITY DATA

DATE	CHLORIDE- DIS- SOLVED (MG/L AS CL)	NITRO- GEN- NUZ-NO3 TOTAL (MG/L AS N)	NITRO- GEN- AMMONIA TOTAL (MG/L AS N)	NITRO- GEN- ORGANIC TOTAL (MG/L AS N)	NITRO- GEN-AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN- TOTAL (MG/L AS N)	NITRO- GEN- TOTAL (MG/L AS NO3)	PHOS- PHORUS- TOTAL (MG/L AS P)	PHOS- PHATE- ORTHOPHOS- PHATE- DIS- SOLVED (MG/L AS P)	PHOS- PHATE- ORTHOPHOS- PHATE- DIS- SOLVED (MG/L AS P)
OCT. 1978										
17...	1.2	.18	.01	.18	.19	.37	1.6	.020	.01	.03
NOV										
28...	1.3	.17	.01	.04	.05	.22	.97	.000	.00	.00
DEC										
12...	1.1	.22	.01	.16	.17	.39	1.7	.030	.02	.06
FEB. 1979										
26...	1.3	.22	.02	.16	.18	.40	1.8	.030	.01	.03
MAR										
27...	.7	.08	.04	.10	.14	.22	.97	.010	.01	.03
APR										
24...	.7	.04	.01	.14	.15	.19	.84	.000	.01	.03
MAY										
08...	.6	.12	.00	.00	.00	.12	.53	.000	.00	.00
JUN										
05...	.3	.07	.01	.11	.12	.19	.84	.250	.01	.03
JUL										
24...	.7	.16	.03	.12	.15	.31	1.4	.020	.00	.00
AUG										
21...	1.1	.14	.00	.4.1	.4.1	.4.2	19	.010	.00	.00
SEP										
11...	.9	.17	.01	.64	.65	.82	3.6	.020	.01	.03

DATE	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHROMIUM DIS- SOLVED (UG/L AS CH)	COPPER DIS- SOLVED (UG/L AS CU)	LEAD DIS- SOLVED (UG/L AS PB)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM DIS- SOLVED (UG/L AS SE)	SILVER DIS- SOLVED (UG/L AS AG)	ZINC DIS- SOLVED (UG/L AS ZN)
OCT. 1978										
17...	1	20	<1	0	3	0	.0	0	0	<3
NOV										
28...	--	--	--	--	--	--	.0	--	--	--
DEC										
12...	0	20	<1	0	0	0	.0	0	0	5
FEB. 1979										
26...	0	0	0	0	1	4	.0	0	0	10
MAR										
27...	0	0	0	0	0	0	.0	0	0	0
APR										
24...	0	20	<1	0	2	2	.0	0	0	<3
MAY										
08...	1	10	<1	0	0	5	--	0	0	5
JUN										
05...	1	0	0	10	0	0	.0	0	0	10
JUL										
24...	1	0	0	0	0	2	.5	0	0	10
AUG										
21...	2	30	<1	0	0	3	.1	0	0	<3
SEP										
11...	2	30	0	20	3	0	.3	0	0	0

COLUMBIA RIVER MAIN STEM

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12462600 COLUMBIA RIVER BELOW ROCK ISLAND DAM, WA

LOCATION.--Lat 47°19'57", long 120°04'48", in NE¼NW¼ sec.9, T.21 N., R.22 E., Douglas County, Hydrologic Unit 17020010, on left bank 1.0 mi (1.6 km) downstream from Rock Island Dam, 2.0 mi (3.2 km) downstream from Rock Island Creek, 12 mi (19.3 km) southeast of Wenatchee, and at mile 452.4 (727.9 km).

DRAINAGE AREA.--89,400 mi² (231,500 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January to December 1910 (gage heights only), May 1913 to December 1916, October 1930 to current year. Published as "at Wenatchee" January 1910 to December 1916, and as "at Trinidad" October 1930 to May 1961.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 1, 1916, non-recording gage 1.2 mi (1.9 km) upstream from highway bridge at Wenatchee, at mile 466.3 (750.3 km), at datum 583 ft (177.7 m) National Geodetic Vertical Datum of 1929. Jan. 1 to Dec. 31, 1916, nonrecording gage on pier of highway bridge at Wenatchee, at mile 465.1 (748.3 km), at datum 579.30 ft (176.571 m) National Geodetic Vertical Datum of 1929. Oct. 1, 1930 to May 31, 1961, water-stage recorder 0.5 mi (0.8 km) southwest of Trinidad, at mile 441.7 (710.7 km), at datum 499.3 ft (152.19 m) National Geodetic Vertical Datum of 1929 (river-profile survey). Since May 21, 1963, auxiliary water-stage recorder 2.0 mi (3.2 km) downstream at same datum.

REMARKS.--Water-discharge records fair. Discharge for Oct. 1 to Jan. 3, Jan. 30 to Feb. 8, Apr. 30, and June 2 to Sept. 30 was provided by Corps of Engineers N.P.D. Reservoir Control Center. Flow regulated by nine major reservoirs and numerous small reservoirs and powerplants. Diversion by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres (1,540 km²) in the United States and an additional 35,000 acres (142 km²) in Canada.

AVERAGE DISCHARGE.--52 years (water years 1914-16, 1931-79), 121,400 ft³/s (3,438 m³/s) 87,950,000 acre-ft/yr (108,400 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 692,600 ft³/s (19,600 m³/s) June 12, 1948, gage height, 59.35 ft (18.090 m) site and datum then in use; minimum, 4,120 ft³/s (117 m³/s) Feb. 10, 1932, gage height, 11.40 ft (3.475 m), site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1894, reached a discharge of about 740,000 ft³/s (21,000 m³/s), from floodmarks at Wenatchee.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 156,000 ft³/s (4,420 m³/s) Jan. 1; minimum daily, 51,900 ft³/s (1,470 m³/s) Sept. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116000	106000	93500	150000	101000	109000	101000	115000	125000	74600	102000	67100
2	125000	113000	84300	137000	125000	118000	112000	104000	86500	103000	102000	53500
3	116000	91500	67500	115000	132000	95800	130000	116000	89500	91400	103000	53000
4	114000	78800	96900	128000	115000	75000	96600	131000	129000	86300	83500	82800
5	108000	75300	104000	129000	119000	97900	105000	113000	111000	80100	52800	93100
6	112000	108000	115000	134000	115000	77000	108000	88500	109000	83400	97700	90100
7	93100	95800	115000	132000	113000	74000	121000	120000	110000	85000	88800	93100
8	95800	86100	106000	129000	110000	82200	108000	128000	117000	75300	88300	79400
9	113000	111000	85800	109000	104000	72700	121000	128000	94300	94500	101000	73500
10	94700	123000	87600	117000	93200	64000	115000	136000	82000	95500	97600	87600
11	88900	105000	105000	124000	79200	62400	118000	140000	119000	103000	86400	86100
12	98900	86800	107000	118000	102000	91700	122000	141000	114000	92700	74400	82700
13	89500	112000	102000	123000	86600	78400	120000	147000	121000	94700	97100	82900
14	83000	132000	94400	103000	99300	95900	93500	136000	108000	70400	96500	87200
15	88600	145000	115000	115000	103000	98000	76700	131000	104000	61000	91600	86400
16	92500	106000	94800	114000	112000	97000	111000	134000	75900	95500	80600	51900
17	108000	99700	56500	128000	95600	91400	120000	123000	65700	99400	82000	65500
18	101000	128000	86900	114000	88800	70400	113000	128000	98500	89500	74000	73800
19	103000	117000	101000	109000	109000	80400	117000	123000	97400	87600	56200	80100
20	101000	95000	102000	106000	112000	82800	88700	105000	102000	94300	87600	78000
21	91200	110000	90800	111000	120000	99600	60800	132000	91500	84300	85000	84300
22	80200	113000	87900	135000	121000	97100	148000	96400	83500	94400	58300	58300
23	91900	94800	81100	125000	122000	99100	112000	141000	82500	107000	88400	56900
24	92200	92100	84800	110000	110000	94800	106000	137000	75600	107000	87600	73400
25	88900	88800	72700	125000	82000	88000	91500	137000	107000	107000	69700	82900
26	97400	88300	96600	124000	104000	119000	90700	116000	110000	103000	63800	76000
27	100000	110000	110000	119000	114000	123000	84300	113000	110000	111000	98100	83700
28	88300	107000	116000	113000	108000	151000	78700	112000	102000	84700	92000	71600
29	83700	107000	119000	139000	---	111000	78100	134000	94600	82500	91500	70000
30	103000	99300	137000	115000	---	115000	108000	138000	78800	108000	93700	52500
31	124000	---	140000	111000	---	120000	---	126000	---	101000	40400	---
TOTAL	3074000	3117300	3046300	3785000	3005700	2923600	3085300	3921800	3007400	2816200	2697700	2237400
MEAN	99190	103900	97950	122100	107300	94310	102800	126500	100200	90850	87620	74580
MAX	125000	145000	140000	155000	132000	151000	130000	148000	129000	111000	103000	93100
MIN	80200	75300	56500	103000	79200	62400	60800	88800	65700	61000	52800	51900
AC-FT	6899000	6183000	6022000	7508000	5962000	5799000	6120000	7779000	5965000	5380000	5351000	4438000
CAL YR 1978	TOTAL	40937900	MEAN	112200	MAX	180000	MIN	53800	AC-FT	81200000		
WTR YR 1979	TOTAL	36708500	MEAN	100600	MAX	156000	MIN	51900	AC-FT	72810000		

COLUMBIA RIVER MAIN STEM

12462600 COLUMBIA RIVER BELOW ROCK ISLAND DAM, WA--Continued

WATER QUALITY RECORDS

LOCATION.--Samples taken at site 1.6 mi (2.6 km) downstream from gaging station, 2.6 mi (4.2 km) downstream from Rock Island Dam, 13 mi (21 km) southeast of Wenatchee, and at mi 450.9 (725.5 km).

PERIOD OF RECORD.--Water years 1972, 1975 to current year.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW (CFS)	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)
OCT , 1978							
16...	1530	92500	--	150	8.3	16.4	10
NOV							
27...	1515	110000	--	148	8.0	7.5	10
DEC							
11...	1530	--	106000	175	8.3	6.5	5
JAN , 1979							
22...	1530	--	132000	150	7.7	1.8	5
FEB							
26...	1300	--	107000	151	7.7	3.1	0
MAR							
26...	1550	--	116000	175	8.8	5.7	10
APR							
23...	1625	--	88400	154	8.2	9.0	20
MAY							
07...	1600	--	127000	152	8.4	10.0	15
JUN							
04...	1610	--	158000	135	8.8	14.8	40
JUL							
23...	1520	--	138000	134	8.3	18.4	15
AUG							
20...	1430	--	160000	150	8.2	20.5	10
SEP							
10...	1530	--	113000	148	8.6	20.5	15

DATE	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS PO4)
OCT , 1978							
16...	3.0	11.4	.11	.01	.020	.01	.03
NOV							
27...	2.0	11.4	.21	.01	.030	.01	.03
DEC							
11...	1.0	12.1	.15	.01	.080	.01	.03
JAN , 1979							
22...	3.0	14.2	.18	.00	.030	.00	.00
FEB							
26...	4.0	14.6	.18	.01	.060	.01	.03
MAR							
26...	3.0	15.4	.14	.05	.010	.00	.00
APR							
23...	5.0	13.2	.21	.00	.040	.02	.06
MAY							
07...	8.0	13.1	.08	.02	.020	.00	.00
JUN							
04...	5.0	12.7	.01	.01	.030	.00	.00
JUL							
23...	4.0	10.4	.08	.01	.030	.03	.09
AUG							
20...	2.0	9.7	.08	.03	.010	.04	.12
SEP							
10...	2.0	11.1	.15	.02	.030	.03	.09

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LOCATION.--Lat 47°32'30", long 117°41'21", in NW¼SW¼ sec.30, T.24 N., R.41 E., Spokane County, Hydrologic Unit 17020013, on north shore 2.2 mi (3.5 km) south of town of Medical Lake.

PERIOD OF RECORD.--September 1958 to current year (fragmentary), chemical analyses April 1973 to October 1973.

PERIOD OF RECORD.--September 1958 to current year (fragmentary); cross-section 1961; 1962.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is 2,298.6 ft (700.61 m) National Geodetic Vertical Datum of 1929.

REMARKS.--No known regulation. Some pumping for domestic use and irrigation. Gage heights to top of ice Dec. 5 to 29, Jan. 2 to 31, Feb. 3 to 13, 24 and Mar. 2.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 44.50 ft (13.564 m) Apr. 2, 1974; minimum observed, 38.74 ft (11.803 m) Oct. 8, 11, 18, 1968, Oct. 16, 19, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 42.49 ft (12.951 m) May 8, 11; minimum observed, 40.35 ft (12.299 m) Sept. 28.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

[illegible]

CRAB CREEK BASIN

12465000 CRAB CREEK AT IRBY, WA

LOCATION.--Lat 47°21'38", long 118°50'56", in NW¼NW¼ sec.31, T.22 N., R.32 E., Lincoln County, Hydrologic Unit 17020013, on right bank 8 ft (2.4 m) upstream from highway bridge at Irby. 5.4 mi (8.7 km) downstream from Lake Creek, 7.5 mi (12.1 km) west of Odessa, and at mile 111.5 (179.4 km).

DRAINAGE AREA.--1,042 mi² (2,699 km²).

PERIOD OF RECORD.--September 1942 to current year. Chemical analyses October 1961 to September 1962.

REVISED RECORDS.--WSP 1446: 1949-51. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,386.30 ft (422.544 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for Nov. 21 to Feb. 25, which are fair. Pumpage from ground-water wells for irrigation has been on the increase above the station since 1964. No regulation.

AVERAGE DISCHARGE.--37 years, 75.0 ft³/s (2.124 m³/s), 54,340 acre-ft/yr (67.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,370 ft³/s (237 m³/s) Feb. 27, 1957, gage height, 11.94 ft (3.639 m); no flow several days during 1969, 1977, 1978, and 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft³/s (8.5 m³/s) and maximum(*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 14	unknown	470 13.3	3.70 1.128	Feb. 28	0300	*585 16.6	*4.08 1.244

a From outside high-water marks.

Minimum discharge, no flow Sept. 13-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	5.1	3.8	1.8	3.4	368	76	29	20	16	6.5	3.7
2	7.2	4.9	3.5	1.9	4.4	284	75	28	20	15	6.5	6.0
3	7.2	4.8	3.4	2.0	5.6	237	73	29	20	14	6.0	4.6
4	5.7	5.2	3.5	2.1	7.4	188	70	28	20	14	6.5	4.1
5	6.7	5.0	3.1	2.0	9.4	163	70	27	20	13	6.5	4.1
6	5.7	5.0	2.8	1.9	12	171	69	26	20	12	6.5	4.1
7	6.7	4.8	2.5	1.4	16	200	67	27	20	13	6.5	3.3
8	6.7	4.4	2.5	2.0	18	206	69	27	20	13	5.5	2.5
9	6.7	4.5	2.6	2.1	21	194	66	26	20	12	4.6	2.1
10	6.2	4.4	2.8	2.2	35	174	66	22	20	12	3.7	2.5
11	6.2	4.3	2.8	2.4	53	155	66	21	20	11	4.1	2.9
12	6.2	4.6	2.8	2.5	49	143	66	22	20	11	4.6	2.1
13	5.3	4.6	2.8	2.5	98	134	64	20	20	11	4.6	.00
14	5.8	4.4	2.7	2.5	370	125	64	20	20	11	4.6	.00
15	5.7	4.4	2.6	2.5	330	118	64	20	20	11	5.8	.00
16	5.8	4.6	2.6	2.3	280	114	66	20	19	11	5.8	3.3
17	5.7	4.5	2.6	2.6	230	112	63	20	20	11	3.3	3.3
18	4.8	4.5	2.6	3.1	190	112	63	20	20	10	1.7	2.9
19	5.4	4.7	2.6	3.8	160	108	61	20	19	10	4.1	2.9
20	5.4	4.0	2.5	7.2	140	106	60	21	19	11	4.1	2.1
21	5.1	3.7	2.5	6.6	120	100	60	21	18	10	3.7	2.1
22	5.3	3.4	2.6	5.7	95	96	60	20	18	9.5	4.1	1.7
23	5.3	3.4	2.7	4.9	140	92	60	20	18	9.5	3.7	4.1
24	4.9	3.4	2.7	5.0	130	89	59	20	18	9.5	4.1	3.7
25	5.0	3.7	2.5	4.7	150	85	56	20	16	9.5	3.3	3.7
26	4.2	3.8	2.4	4.3	231	85	55	20	16	9.0	2.9	2.9
27	4.7	3.8	2.3	3.9	450	83	44	20	16	8.5	3.7	2.1
28	5.0	3.5	2.2	3.6	505	83	34	20	16	8.5	3.7	1.7
29	4.9	3.3	2.0	3.3	---	80	37	20	15	5.0	3.3	3.3
30	4.7	3.4	1.9	3.0	---	76	30	20	14	8.0	4.6	2.9
31	5.1	---	1.8	2.7	---	76	---	19	---	8.0	5.0	---
TOTAL	176.5	128.1	82.7	99.0	3853.2	4357	1835	693	562	340.0	142.0	84.78
MEAN	5.69	4.27	2.67	3.19	138	141	61.2	22.4	18.7	11.0	4.58	2.82
MAX	7.2	5.2	3.8	7.2	505	368	76	29	20	16	6.5	6.0
MIN	4.2	3.3	1.8	1.8	3.4	76	30	19	14	8.0	1.7	.00
AC-FT	350	254	164	196	7640	8640	3640	1370	1110	674	282	168
CAL YR 1978 TOTAL	20392.75			MEAN 55.9	MAX 1100	MIN .01	AC-FT 40450					
WTR YR 1979 TOTAL	12353.20			MEAN 33.8	MAX 505	MIN .00	AC-FT 24500					

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LOCATION.--Lat 47°11'22", long 119°15'53", in NW1/4 Sec.35, T.20 N., R.26 E., Grant County, Hydrologic Unit 12020015, on left bank at downstream side of highway bridge, 3 mi (4.8 km) upstream from Parker Horn, 4 mi (6.4 km) north of town of Moses Lake, and at mile 03.0 (101.4 km).

PERIOD OF RECORD.--September 1942 to current year, chemical analyses October 1961 to September 1962.

GAGE.--Water-stage recorder. Datum of gage in 1,070.39 ft (326.255 m) Bureau of Reclamation datum. Prior to July 14, 1950, at site 300 ft (91 m) upstream at same datum.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,400 ft³/s (295 m³/s), Feb. 28, 1957, gage height, 6.61 ft (2.076 m); no flow for several months each year prior to 1952, and part of each day Jan. 14, 15, 1953.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 113 ft³/s (3.14 m³/s) Mar. 11 and 12, gage height, 3.13 ft (0.954 m); minimum daily, 9.0 ft³/s (0.25 m³/s) Jan. 31, Feb. 1.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	59	42	11	9.0	15	39	24	34	66	74	77
2	70	58	39	12	9.5	13	38	24	34	63	72	80
3	70	58	35	12	10	13	34	23	34	57	73	85
4	70	57	34	13	11	14	34	23	36	54	74	82
5	70	53	32	12	12	14	34	23	36	54	74	88
6	77	52	31	12	13	16	33	23	37	55	76	89
7	75	51	28	12	14	16	32	23	38	58	76	84
8	74	50	27	12	14	14	31	22	39	59	74	89
9	74	47	28	12	14	13	31	22	39	59	74	81
10	69	44	28	13	14	56	31	22	42	68	76	79
11	70	43	29	13	16	103	29	23	43	61	75	79
12	70	43	28	13	22	111	29	21	42	62	75	79
13	67	43	26	13	62	105	29	21	42	62	74	79
14	67	41	25	13	26	99	28	22	43	63	81	79
15	67	41	25	13	19	94	28	22	43	62	82	88
16	66	41	25	12	20	89	28	23	45	61	80	88
17	65	42	25	12	19	85	29	23	46	63	79	79
18	65	42	25	12	22	79	27	24	47	63	79	77
19	66	45	23	12	20	73	26	24	46	65	81	77
20	67	43	23	13	18	67	25	24	46	66	88	77
21	66	41	23	14	18	63	25	24	45	65	80	76
22	65	40	25	13	17	60	25	25	46	66	80	76
23	66	40	25	12	17	56	26	26	46	68	82	76
24	66	39	26	11	18	53	32	26	46	68	88	75
25	64	39	24	11	27	51	31	27	48	70	88	75
26	64	39	22	11	25	50	28	28	48	72	80	76
27	63	37	21	11	20	51	26	29	48	72	79	77
28	63	35	19	10	16	51	24	31	47	73	80	79
29	62	34	17	10	---	47	23	32	50	73	80	79
30	60	36	14	9.5	---	45	23	32	48	72	79	77
31	60	---	12	9.0	---	43	---	34	---	73	77	---
TOTAL	2092	1333	984	380.5	522.5	1660	884	770	1283	1987	2412	2365
MEAN	67.5	44.4	26.0	11.9	18.7	53.5	29.5	24.8	42.8	64.1	77.8	76.0
MAX	77	59	42	14	62	111	39	34	50	73	82	89
MIN	60	34	12	9.0	9.0	13	23	21	34	54	72	75
AC-FT	4190	2640	1600	731	1040	3290	1750	1530	2540	3940	4780	4690

CAL YR 1978	TOTAL	25943.0	MEAN	71.1	MAX	578	WIN	12	AC-FT	51400
WTR YR 1979	TOTAL	16483.0	MEAN	45.2	MAX	111	WIN	9.0	AC-FT	32890

CRAB CREEK BASIN

12409500 LEMORE LAKE NEAR SOAP LAKE, WA

LOCATION.--Lat 47°30'52", long 119°30'06", in SE¼SW¼ sec.1, T.25 N., R.26 E., Grant County, Hydrologic Unit 17020014, on east shore 200 ft (61 m) downlake from outlet gate on Alkali Lake and 8.6 mi (14.2 km) north of town of Soap Lake.

DRAINAGE AREA.--367 mi² (951 km²), of which 281 mi² (729 km²) in the vicinity of Banks Lake is noncontributing.

PERIOD OF RECORD.--July 1936, March 1938 to December 1956 (fragmentary), January 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (Bureau of Reclamation bench mark). Prior to Dec. 20, 1956, nonrecording gages 800 ft (244 m) uplake at same datum.

REMARKS.--Some diversion from tributaries for irrigation, and pumping into and out of lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 1,047.73 ft (319.540 m) June 12, 1953; minimum, 1,072.72 ft (326.965 m) Jan. 2, 1959 (affected by wind).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation known, 1,093.2 ft (332.90 m), from well-defined alkali line at gage, date unknown.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,079.06 ft (329.080 m) Mar. 1, 2; minimum, 1,076.12 ft (328.001 m) Sept. 28, 30.

ELEVATION, IN FEET NGVD; WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1078.16	1077.60	1078.10	---	1078.91	1079.66	1079.36	1079.03	1078.32	1077.16	1076.56	1076.33
2	1078.16	1077.61	1078.12	1078.51	1078.93	1079.65	1079.37	1079.01	1078.28	1077.12	1076.55	1076.33
3	1078.12	1077.63	1078.13	---	1078.93	1079.66	1079.36	1079.00	1078.23	1077.06	1076.51	1076.34
4	1078.08	1077.66	1078.14	---	1078.93	1079.63	1079.36	1078.99	1078.19	1077.05	1076.51	1076.32
5	1078.05	1077.65	1078.15	---	1078.96	1079.63	1079.36	1078.97	1078.13	1077.01	1076.49	1076.31
6	1078.01	1077.66	1078.15	---	1078.91	1079.61	1079.34	1078.95	1078.08	1076.98	1076.46	1076.31
7	1077.98	1077.67	1078.16	---	1078.93	1079.60	1079.34	1078.91	1078.03	1076.98	1076.46	1076.30
8	1077.94	1077.67	1078.17	---	1078.94	1079.59	1079.33	1078.89	1078.01	1076.96	1076.44	1076.31
9	1077.91	1077.66	1078.19	---	1078.97	1079.58	1079.32	1078.86	1077.97	1076.91	1076.42	1076.29
10	1077.88	1077.67	1078.20	---	1078.99	1079.57	1079.31	1078.83	1077.96	1076.89	1076.42	1076.27
11	1077.83	1077.67	1078.23	---	1078.12	1079.57	1079.29	1078.80	1077.96	1076.86	1076.41	1076.26
12	1077.80	1077.68	1078.24	---	1078.13	1079.56	1079.29	1078.78	1077.95	1076.86	1076.38	1076.25
13	1077.78	1077.69	1078.25	---	1078.19	1079.55	1079.29	1078.76	1077.89	1076.82	1076.37	1076.25
14	1077.75	1077.69	1078.26	---	1078.29	1079.55	1079.28	1078.71	1077.83	1076.80	1076.38	1076.25
15	1077.72	1077.68	1078.28	1078.71	1079.22	1079.54	1079.24	1078.68	1077.79	1076.79	1076.39	1076.25
16	1077.70	1077.61	1078.29	---	1078.28	1079.54	1079.24	1078.67	1077.75	1076.78	1076.39	1076.25
17	1077.71	1077.63	1078.31	---	1078.29	1079.53	1079.24	1078.66	1077.72	1076.80	1076.37	1076.23
18	1077.72	1077.69	1078.32	---	1078.32	1079.52	1079.22	1078.66	1077.69	1076.80	1076.37	1076.23
19	1077.73	1077.61	1078.34	---	1078.33	1079.51	1079.21	1078.66	1077.65	1076.78	1076.36	1076.23
20	1077.74	1077.63	1078.35	---	1078.36	1079.50	1079.19	1078.67	1077.61	1076.78	1076.36	1076.24
21	1077.73	1077.66	1078.36	---	1078.41	1079.49	1079.17	1078.67	1077.57	1076.75	1076.36	1076.23
22	1077.74	1077.67	1078.38	1078.60	1079.43	1079.48	1079.15	1078.66	1077.53	1076.72	1076.35	1076.23
23	1077.75	1077.68	1078.39	1078.61	1079.46	1079.47	1079.14	1078.67	1077.49	1076.69	1076.35	1076.23
24	1077.76	1077.69	1078.40	1078.62	1079.50	1079.44	1079.13	1078.63	1077.44	1076.68	1076.35	1076.22
25	1077.75	1078.01	1078.42	1078.63	1079.54	1079.43	1079.11	1078.59	1077.41	1076.66	1076.35	1076.22
26	1077.75	1078.02	1078.43	1078.64	1079.57	1079.43	1079.09	1078.55	1077.37	1076.66	1076.33	1076.21
27	1077.76	1078.03	1078.44	1078.65	1079.60	1079.41	1079.08	1078.50	1077.33	1076.66	1076.32	1076.20
28	1077.77	1078.05	1078.45	1078.67	1079.63	1079.42	1079.06	1078.44	1077.29	1076.64	1076.32	1076.18
29	1077.78	1078.06	1078.47	1078.68	---	1079.39	1079.05	1078.42	1077.27	1076.61	1076.31	1076.18
30	1077.78	1078.08	1078.47	1078.69	---	1079.38	1079.03	1078.38	1077.21	1076.59	1076.22	1076.16
31	1077.79	---	1078.48	1078.90	---	1079.36	---	1078.34	---	1076.59	1076.33	---
MEAN	1077.84	1077.92	1078.29	---	1079.23	1079.52	1079.23	1078.72	1077.76	1076.82	1076.40	1076.25
MAX	1078.16	1078.08	1078.48	---	1079.63	1079.68	1079.37	1079.03	1078.32	1077.16	1076.56	1076.34
MIN	1077.70	1077.60	1078.10	---	1078.91	1079.36	1079.03	1078.34	1077.21	1076.59	1076.31	1076.16
CAL. YR 1978	MEAN	1078.65	MAX	1080.45	MIN	1077.70						

CRAN CREEK BASIN

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12470000 SOAP LAKE NEAR SOAP LAKE, WA

LOCATION.--Lat 47°24'11", long 119°29'11", in NW1/4 sec.18, T.22 N., R.27 E., Grant County, Hydrologic Unit 17020014, on east shore 0.9 mi (1.4 km) north of town of Soap Lake.

DRAINAGE AREA.--413 mi² (1,070 km²), of which 281 mi² (728 km²) in the vicinity of Banks Lake is noncontributing.

PERIOD OF RECORD.--May to August 1936, March 1936 to February 1957 (fragmentary), March 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (Bureau of Reclamation bench mark). Prior to Feb. 4, 1953, nonrecording gage at site 0.2 mi (0.3 km) uplake. Feb. 4, 1953, to June 8, 1954, nonrecording gage at site 1.5 mi (2.4 km) uplake and June 9, 1954, to June 21, 1957, water-stage recorder at site 0.2 mi (0.3 km) uplake.

REMARKS.--Some diversion from tributaries for irrigation. Water pumped from lake to reduce or limit high stages.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 1,079.20 ft (328.940 m) Jan. 20, 1953; minimum observed, 1,070.87 ft (326.401 m) Oct. 21, 1939.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation known, 1,083.1 ft (330.13 m), from well-defined alkali line at gage, date unknown.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,074.45 ft (327.492 m) Mar. 24, 27, Apr. 4, 6; minimum, 1,073.00 ft (327.050 m) Sept. 30.

ELEVATION, IN FEET HOWE WATER YEAR OCTOBER 1970 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1073.72	1073.73	1073.83	1073.93	1074.10	1074.20	1074.42	1074.41	1074.11	1073.71	1073.31	1073.13
2	1073.72	1073.74	1073.84	---	1074.11	1074.30	1074.42	1074.41	1074.10	1073.70	1073.20	1073.13
3	1073.72	1073.74	1073.84	---	1074.11	1074.30	1074.42	1074.41	1074.09	1073.69	1073.29	1073.14
4	1073.72	1073.75	1073.84	---	1074.11	1074.31	1074.42	1074.40	1074.07	1073.68	1073.24	1073.13
5	1073.73	1073.74	1073.85	---	1074.11	1074.32	1074.42	1074.40	1074.06	1073.67	1073.23	1073.13
6	1073.73	1073.74	1073.85	---	1074.12	1074.33	1074.43	1074.30	1074.03	1073.66	1073.20	1073.12
7	1073.74	1073.75	1073.85	---	1074.13	1074.33	1074.41	1074.30	1073.99	1073.67	1073.20	1073.12
8	1073.74	1073.76	1073.85	---	1074.13	1074.34	1074.41	1074.30	1073.98	1073.66	1073.19	1073.11
9	1073.74	1073.76	1073.86	---	1074.13	1074.34	1074.40	1074.37	1073.98	1073.65	1073.18	1073.10
10	1073.74	1073.74	1073.87	---	1074.14	1074.35	1074.40	1074.34	1073.97	1073.63	1073.18	1073.08
11	1073.72	1073.73	1073.88	---	1074.15	1074.35	1074.40	1074.32	1073.97	1073.62	1073.16	1073.08
12	1073.71	1073.73	1073.88	---	1074.16	1074.36	1074.41	1074.33	1073.95	1073.59	1073.15	1073.07
13	1073.71	1073.73	1073.88	---	1074.16	1074.37	1074.40	1074.32	1073.93	1073.58	1073.15	1073.07
14	1073.71	1073.73	1073.89	---	1074.18	1074.37	1074.40	1074.31	1073.91	1073.58	1073.16	1073.07
15	1073.72	1073.74	1073.89	1074.01	1074.18	1074.38	1074.40	1074.31	1073.89	1073.54	1073.18	1073.07
16	1073.72	1073.74	1073.89	---	1074.19	1074.38	1074.42	1074.31	1073.88	1073.54	1073.18	1073.07
17	1073.73	1073.74	1073.90	---	1074.21	1074.39	1074.43	1074.28	1073.88	1073.54	1073.18	1073.07
18	1073.73	1073.75	1073.90	---	1074.22	1074.40	1074.43	1074.27	1073.87	1073.53	1073.16	1073.07
19	1073.74	1073.76	1073.90	---	1074.22	1074.40	1074.42	1074.24	1073.85	1073.52	1073.16	1073.07
20	1073.74	1073.76	1073.90	---	1074.23	1074.41	1074.42	1074.24	1073.83	1073.51	1073.16	1073.07
21	1073.73	1073.76	1073.90	---	1074.23	1074.41	1074.41	1074.23	1073.82	1073.48	1073.16	1073.06
22	1073.72	1073.76	1073.91	1074.05	1074.24	1074.41	1074.41	1074.22	1073.82	1073.45	1073.15	1073.06
23	1073.73	1073.77	1073.92	1074.06	1074.24	1074.41	1074.41	1074.22	1073.80	1073.43	1073.16	1073.06
24	1073.72	1073.79	1073.93	1074.06	1074.25	1074.43	1074.41	1074.21	1073.79	1073.42	1073.16	1073.06
25	1073.72	1073.78	1073.92	1074.06	1074.27	1074.42	1074.41	1074.21	1073.78	1073.41	1073.16	1073.06
26	1073.71	1073.79	1073.93	1074.07	1074.27	1074.42	1074.41	1074.21	1073.78	1073.41	1073.15	1073.05
27	1073.72	1073.79	1073.93	1074.08	1074.28	1074.43	1074.41	1074.18	1073.77	1073.40	1073.14	1073.04
28	1073.72	1073.81	1073.93	1074.08	1074.29	1074.43	1074.41	1074.15	1073.77	1073.38	1073.14	1073.03
29	1073.72	1073.81	1073.92	1074.08	---	1074.43	1074.41	1074.13	1073.75	1073.36	1073.13	1073.02
30	1073.73	1073.82	1073.92	1074.09	---	1074.43	1074.41	1074.12	1073.72	1073.34	1073.14	1073.01
31	1073.73	---	---	1074.10	---	1074.43	---	1074.11	---	1073.33	1073.14	---
MEAN	1073.73	1073.76	---	---	1074.19	1074.38	1074.41	1074.28	1073.90	1073.54	1073.18	1073.08
MAX	1073.74	1073.82	---	---	1074.29	1074.43	1074.43	1074.41	1074.11	1073.71	1073.31	1073.14
MIN	1073.71	1073.73	---	---	1074.18	1074.29	1074.40	1074.11	1073.72	1073.33	1073.13	1073.01

LOCATION.--Lat. 47°19'46", long 119°26'40", in SWSW6 sec.16, T.21 N., R.27 E., Grant County, Hydrologic Unit 17020015, on right bank 1.4 mi (2.3 km) downstream from source at Rocky Ford Springs, 5.0 mi (8.0 km) east of Ephrata, and 0.3 mi (0.5 km) upstream from mouth at Moses Lake.

PERIOD OF RECORD.--June 1909 to April 1910, July to December 1911, August 1942 to current year. Prior to January 1910, published as Upper Crab Creek near Ephrata.

GAGE.--Water-stage recorder. Datum of gage is 1,068.51 ft (325.682 m) Bureau of Reclamation datum. Prior to Jan. 1, 1912, nonrecording gages at sites 4.5 mi (7.2 km) to 5.5 mi (8.8 km) downstream at different datums. Aug. 19, 1942, to May 23, 1945, water-stage recorder at site 3.5 mi (5.6 km) downstream at datum 5.37 ft (1.637 m) lower. May 23, 1945 to June 15, 1977, water-stage recorder at site 0.2 mi (0.3 km) downstream at datum 5.53 ft (1.106 m) lower.

AVERAGE DISCHARGE.--37 years (water years 1943-79), 78.2 ft³/s (2.215 m³/s), 56,660 acre-ft/yr (69.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 212 ft³/s (6.00 m³/s) Apr. 15-18, 1956, gage height, 3.58 ft (1.091 m) datum then in use; minimum observed, 20 ft³/s (0.57 m³/s) Aug. 13-18, 1911.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 85 ft³/s (2.41 m³/s) Nov. 19-20, Dec. 1; minimum daily discharge, 43 ft³/s (1.22 m³/s) Apr. 9-20.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	05	00	05	55	50	48	45	46	54	59	63	69
2	05	00	04	55	50	48	45	46	54	58	63	70
3	05	00	03	55	50	48	45	46	54	58	63	70
4	05	00	02	54	49	49	45	47	54	60	63	70
5	05	04	02	54	47	48	44	47	56	61	63	71
6	05	07	02	54	47	48	44	46	58	62	63	71
7	05	08	02	54	46	47	44	47	57	62	65	71
8	04	09	01	54	44	47	44	47	58	62	64	71
9	03	74	00	54	44	46	43	48	58	62	64	72
10	03	78	00	54	46	46	43	48	58	62	64	72
11	03	78	79	53	48	46	43	48	58	62	64	72
12	03	79	78	52	47	46	43	49	59	63	64	72
13	03	81	78	52	47	46	43	49	59	63	65	72
14	02	02	78	52	47	46	43	50	59	63	65	72
15	02	02	69	52	46	46	43	50	56	65	65	72
16	03	03	61	51	46	46	43	50	54	65	64	72
17	04	04	60	51	47	46	43	51	55	66	64	64
18	04	04	60	51	48	46	43	51	55	69	64	64
19	04	05	60	52	49	46	43	51	56	71	65	64
20	03	05	60	52	49	46	43	52	57	72	65	65
21	03	05	60	51	49	45	45	52	58	72	65	65
22	03	05	59	51	49	46	45	52	58	68	65	65
23	03	05	59	51	49	46	46	53	60	64	65	65
24	02	05	58	50	49	46	45	52	62	62	65	65
25	03	05	59	50	49	46	45	53	62	60	65	65
26	03	05	58	50	49	45	45	53	59	60	65	65
27	03	04	56	51	49	46	46	53	59	60	66	65
28	02	04	56	51	48	46	46	53	59	61	66	65
29	01	04	56	50	---	45	46	52	58	61	68	66
30	01	04	56	50	---	45	46	52	59	61	68	66
31	00	---	55	50	---	45	---	53	---	63	70	---
TOTAL	1960	2329	2136	1616	1388	1436	1327	1546	1723	1956	2088	2050
MEAN	63.2	77.4	68.9	52.1	47.8	46.3	44.2	49.9	57.4	63.1	64.8	68.3
MAX	05	05	05	55	50	49	46	53	62	72	70	72
MIN	00	00	55	50	44	45	43	46	54	58	63	64
ACFT	3090	4620	4240	3210	2650	2050	2630	3070	3420	3800	3900	4070

CAL YR 1970	TOTAL	21493	MEAN 58.9	MAX 85	MIN 43	AC-FT	42638
WTR YR 1970	TOTAL	21425	MEAN 58.7	MAX 85	MIN 43	AC-FT	42500

CRAB CREEK BASIN

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12471000 MOSES LAKE AT MOSES LAKE, WA

LOCATION.--Lat 47°09'11", long 119°19'02", in SW4SW4 sec.28, T.19 N., R.28 E., Grant County, Hydrologic Unit 17020015, on east shore 35 ft (11 m) north of U.S. Highway 10 and Interstate 90, 1.7 mi (2.7 km) upstream from outlet, 2.7 mi (4.3 km) southwest of town of Moses Lake, and at mile 55.9 (89.9 km).

DRAINAGE AREA.--3,080 mi² (7,977 km²), of which 665 mi² (1,722 km²) is noncontributing.

PERIOD OF RECORD.--June 1909 to September 1914 and November 1936 to September 1945 (fragmentary), October 1945 to current year. Published as "at Neppel" 1912-14.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is Bureau of Reclamation datum. Prior to Apr. 3, 1910, nonrecording gage at site 0.6 mi (1.0 km) northeast at different datum. Apr. 3, 1910, to Sept. 30, 1914, and Nov. 19, 1936, to Nov. 24, 1944, nonrecording gages at site 2.8 mi (4.5 km) northeast at Parker Horn at various datums. Oct. 30, 1945, to Mar. 14, 1955, water-stage recorder at site near west shore on downstream side of bridge on U.S. Highway 10 at present datum.

REMARKS.--Elevation controlled between 1,046 (318.8 m) and 1,048 ft (319.4 m) by two outlet structures at south end of lake. Many small diversions for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 1,048.29 ft (319.519 m) Mar. 10, 1950; minimum observed, 1,038.17 ft (316.434 m) Aug. 27, 1910.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,047.21 ft (319.190 m) Apr. 22, 23; minimum, 1,045.59 ft (316.006 m) Feb. 6, 7.

ELEVATION, IN FEET NGVD, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1045.90	1044.02	1043.62	1043.60	1044.16	1044.60	1046.87	1046.80	1046.77	1046.77	1046.91
2	1046.92	1045.78	1044.01	1043.61	1043.60	1044.18	1044.60	1046.86	1046.84	1046.79	1046.73	1046.86
3	---	1045.53	1043.98	1043.61	1043.60	1044.21	1044.60	1046.86	1046.87	1046.81	1046.66	1046.82
4	1046.83	1045.39	1043.96	1043.61	1043.60	1044.24	1044.73	1046.85	1046.85	1046.83	1046.62	1046.80
5	---	1045.25	1043.96	1043.61	1043.60	1044.27	1044.94	1046.87	1046.78	1046.84	1046.59	1046.77
6	1046.76	1045.14	1043.92	1043.61	1043.60	1044.30	1045.17	1046.89	1046.79	1046.83	1046.58	1046.73
7	---	1045.03	1043.89	1043.61	1043.64	1044.34	1045.45	1046.89	1046.62	1046.82	1046.57	1046.71
8	---	1044.93	1043.87	1043.60	1043.65	1044.36	1045.71	1046.91	1046.59	1046.81	1046.58	1046.67
9	1046.69	1044.85	1043.85	1043.60	1043.67	1044.38	1045.95	1046.93	1046.58	1046.88	1046.60	1046.64
10	---	1044.76	1043.84	1043.64	1043.66	1044.41	1046.15	1046.87	1046.56	1046.77	1046.63	1046.61
11	---	1044.68	1043.82	1043.64	1043.69	1044.46	1046.35	1046.85	1046.55	1046.72	1046.67	1046.59
12	---	1044.60	1043.81	1043.64	1043.72	1044.51	1046.52	1046.87	1046.55	1046.74	1046.67	1046.57
13	---	1044.54	1043.79	1043.64	1043.80	1044.56	1046.64	1046.87	1046.56	1046.76	1046.66	1046.54
14	---	1044.49	1043.77	1043.64	1043.82	1044.58	1046.74	1046.90	1046.57	1046.82	1046.66	1046.52
15	---	1044.44	1043.75	1043.64	1043.83	1044.61	1046.86	1046.88	1046.57	1046.92	1046.67	1046.50
16	1046.54	1044.39	1043.75	1043.64	1043.85	1044.64	1046.97	1046.69	1046.59	1046.97	1046.67	1046.48
17	---	1044.35	1043.73	1043.64	1043.86	1044.65	1047.04	1046.69	1046.62	1046.85	1046.67	1046.46
18	1046.51	1044.35	1043.71	1043.63	1043.88	1044.67	1047.13	1046.69	1046.64	1046.74	1046.64	1046.44
19	1046.50	1044.36	1043.70	1043.63	1043.90	1044.68	1047.16	1046.63	1046.64	1046.65	1046.57	1046.43
20	1046.49	1044.38	1043.68	1043.63	1043.92	1044.68	1047.18	1046.57	1046.65	1046.60	1046.51	1046.42
21	1046.48	1044.26	1043.67	1043.63	1043.94	1044.69	1047.20	1046.58	1046.67	1046.70	1046.63	1046.49
22	1046.46	1044.22	1043.65	1043.62	1043.95	1044.68	1047.20	1046.57	1046.68	1046.72	1046.77	1046.56
23	1046.44	1044.20	1043.65	1043.62	1043.98	1044.68	1047.21	1046.60	1046.70	1046.74	1046.90	1046.62
24	1046.45	1044.17	1043.64	1043.62	1044.00	1044.68	1047.17	1046.62	1046.71	1046.76	1047.01	1046.69
25	1046.42	1044.14	1043.63	1043.62	1044.04	1044.67	1047.09	1046.61	1046.73	1046.80	1047.05	1046.75
26	1046.41	1044.11	1043.62	1043.62	1044.07	1044.66	1046.99	1046.60	1046.74	1046.88	1047.08	1046.85
27	1046.40	1044.08	1043.63	1043.61	1044.10	1044.68	1046.91	1046.60	1046.75	1046.91	1047.10	1046.92
28	1046.39	1044.05	1043.63	1043.61	1044.13	1044.68	1046.88	1046.62	1046.76	1046.78	1047.11	1046.91
29	1046.37	1044.04	1043.62	1043.61	---	1044.65	1046.88	1046.64	1046.76	1046.71	1047.06	1046.94
30	1046.35	1044.03	1043.62	1043.61	---	1044.63	1046.89	1046.71	1046.75	1046.69	1047.08	1046.97
31	1046.14	---	1043.62	1043.61	---	1044.63	---	1046.76	---	1046.74	1046.95	---
MEAN	---	1044.61	1043.77	1043.62	1043.61	1044.52	1046.36	1046.75	1046.68	1046.70	1046.75	1046.67
MAX	---	1045.99	1044.02	1043.64	1044.13	1044.68	1047.21	1046.93	1046.87	1046.97	1047.11	1046.97
MIN	---	1044.03	1043.62	1043.60	1043.60	1044.16	1046.60	1046.50	1046.55	1046.60	1046.51	1046.42

12472300 DW 272A1 DRAIN NEAR ROYAL CAMP, WA

LOCATION.--Lat 46°54'48", long 119°32'32", in SEWSW sec.34, T.17 N., R.26 E., Grant County, Hydrologic Unit 17020015, on left bank 200 ft (61 m) upstream from entrance to DW 272A Drain and 2.7 mi (4.3 km) southwest of Royal Camp.

DRAINAGE AREA.--0.88 mi² (2.28 km²).

PERIOD OF RECORD.--April 1977 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 990 ft (302 m), from topographic map.

REMARKS.--Water-discharge records excellent. To obtain comparable records of water flow and water-quality data, all daily values have been computed with the day beginning at 0900 hours. Principal source of flow is waste and ground water return flows from irrigation. Water quality data, including daily records for water temperature, suspended sediment, total nitrogen, total nitrate-plus-nitrite, total ortho-phosphorus, and total phosphorus for the period March 1977 through September 1979, in separate data report, "QUALITY OF IRRIGATION WATER DATA FROM SELECTED SITES IN SOUTHEASTERN WASHINGTON" (in preparation).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18 ft³/s (0.51 m³/s) July 1, 1978, gage height, 5.58 ft (1.701 m) from rating curve extended above 6.0 ft³/s (0.17 m³/s) on basis of computation of flow through culvert at gage height 5.58 ft (1.701 m); minimum daily, 0.47 ft³/s (0.018 m³/s) Jan. 9, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9.6 ft³/s (0.27 m³/s) June 26, gage height, 5.15 ft (1.570 m); minimum daily, 0.47 ft³/s (0.013 m³/s) Jan. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	1.9	1.2	.68	.65	1.1	.74	3.2	5.7	5.5	4.6	4.1
2	4.1	1.1	1.2	.88	.63	1.0	.74	3.2	5.4	6.3	4.7	3.7
3	4.9	1.1	1.3	.65	.57	1.0	.74	3.9	5.7	5.0	4.5	3.4
4	3.8	1.0	1.3	.54	.54	1.1	.73	4.1	6.1	4.8	4.6	3.9
5	3.0	.98	1.2	.58	.61	1.1	2.3	4.5	6.3	3.5	4.6	3.2
6	3.2	1.0	1.2	.91	.62	1.2	3.4	4.0	6.3	3.4	4.7	3.2
7	4.5	1.0	1.1	.49	.67	1.2	3.6	4.1	6.3	3.9	4.8	3.3
8	4.6	.99	1.1	.49	.81	1.2	3.7	4.6	4.9	3.9	4.7	3.2
9	5.0	.93	1.1	.47	1.3	1.2	3.8	4.8	5.6	3.9	6.1	3.1
10	6.0	.99	1.2	.52	1.1	1.2	3.8	4.9	5.6	3.6	5.2	3.0
11	5.6	1.0	1.1	.54	.87	1.2	3.8	4.1	5.8	3.6	4.9	2.9
12	5.3	1.0	1.0	.49	2.0	1.1	3.8	4.0	6.6	4.0	5.0	2.8
13	4.6	1.0	1.1	.51	1.4	1.1	3.7	3.7	6.8	4.1	5.3	2.8
14	4.8	1.0	1.1	.63	.87	1.1	3.8	3.6	5.2	4.7	6.3	2.7
15	4.9	.98	1.0	.61	.81	1.2	4.1	5.0	5.0	4.7	6.1	2.7
16	4.9	.98	1.1	.53	.84	1.1	4.0	4.6	5.9	4.7	7.2	2.7
17	3.8	.99	1.1	.58	.86	1.0	2.4	5.0	6.2	6.0	8.1	2.7
18	3.7	.98	1.0	.58	.87	.99	2.1	5.8	6.1	5.4	8.3	2.7
19	3.6	1.1	.98	.58	.86	.99	2.3	5.4	5.7	7.2	5.7	2.6
20	3.5	1.1	.91	.64	.94	1.0	2.2	4.3	5.9	6.7	5.7	3.0
21	3.3	1.1	.96	.70	.93	.93	2.3	4.2	5.8	6.6	4.9	2.5
22	3.3	1.1	.99	.63	.93	.89	2.4	4.1	5.6	5.6	5.2	2.3
23	3.3	1.1	.98	.71	.93	.93	2.5	4.5	5.6	5.2	5.1	2.1
24	3.0	1.1	1.0	.73	.93	.93	3.1	4.5	5.6	6.3	4.9	2.2
25	1.2	1.1	.98	.68	1.0	.93	2.1	5.7	6.7	6.5	4.9	2.4
26	1.1	1.1	1.0	.63	1.0	.93	2.4	5.5	6.2	6.1	4.9	2.6
27	1.1	1.1	1.0	.68	1.0	.93	2.4	6.0	6.1	6.1	4.5	2.7
28	1.2	1.1	.93	.63	1.1	.89	2.7	6.8	5.6	6.6	4.5	2.5
29	1.1	1.1	.88	.68	---	.78	2.5	5.0	5.3	6.0	4.2	2.3
30	.98	1.3	.82	.66	---	.73	2.9	6.3	5.1	6.5	3.9	2.6
31	.98	---	.73	.69	---	.79	---	6.6	---	6.1	3.6	---
TOTAL	106.16	31.39	32.56	16.76	25.64	31.61	81.07	145.2	175.1	162.7	159.7	85.2
MEAN	3.49	1.05	1.05	.61	.92	1.02	2.70	4.68	5.84	5.25	5.16	2.84
MAX	6.0	1.3	1.3	.73	2.0	1.2	4.1	6.6	6.8	7.2	8.1	4.1
MIN	.98	.93	.73	.67	.54	.79	.73	3.2	4.9	3.4	3.6	2.1
AC-FT	215	62	65	37	51	63	161	288	347	323	317	169

CAL YR 1978 TOTAL 1069.37 MEAN 2.93 MAX 7.1 MIN .73 AC-FT 2120
WTR YR 1979 TOTAL 1057.09 MEAN 2.90 MAX 8.1 MIN .47 AC-FT 2100

CRAB CREEK BASIN

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12472556 DW 272A DRAIN NEAR ROYAL CAMP, WA

LOCATION.--Lat 46°54'54", long 119°52'50", in NW¼NW¼ sec.3, T.16 N., R.26 E., Grant County, Hydrologic Unit 17020015, on right bank at upstream end of culvert under a county road, 20 ft (6 m) downstream from entrance of DW 272A1 Drain, 0.2 mi (0.3 km) upstream from entrance to DW 272 Drain, 1.4 mi (2.3 km) upstream from Crab Creek Lateral, and 2.7 mi (4.3 km) southwest of Royal Camp.

DRAINAGE AREA.--3.36 mi² (8.70 km²).

PERIOD OF RECORD.--April 1977 to current year.

GAGE.--Water-stage recorder and corrugated metal culvert control. Altitude of gage is 990 ft (300 m), from topographic map.

REMARKS.--Water-discharge records excellent. Flow includes that of DW 272A1 Drain (station 12472500). To obtain comparable records of water flow and water-quality data, all daily values have been computed with the day beginning at 0900 hours. Principal source of flow is waste and ground-water return flows from irrigation. During the irrigation season most of the flow is reused and during the nonirrigation season wasted to Crab Creek. Water quality data, including daily records for water temperature, suspended sediment, total nitrogen, total nitrate-plus nitrite, total ortho-phosphorus, and total phosphorus for the period March 1977 through September 1979, in separate report, "QUALITY OF IRRIGATION WATER DATA FROM SELECTED SITES IN SOUTHEASTERN WASHINGTON" (in preparation).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40 ft³/s (1.13 m³/s) July 1, 1978, gage height, 15.18 ft (4.627 m) from rating curve extended above 14 ft³/s (0.40 m³/s) on basis of computation of flow through a culvert at gage height, 15.18 ft (4.627 m); minimum daily, 1.6 ft³/s (0.04 m³/s) Jan. 6-8, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21 ft³/s (0.59 m³/s) May 31, gage height, 11.90 ft (3.655 m); minimum daily, 1.6 ft³/s (0.04 m³/s) Jan. 6-8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.6	2.0	2.0	1.9	1.9	2.8	2.2	7.3	15	14	13	11
2	6.4	2.0	2.9	1.9	1.0	2.7	2.2	6.2	13	15	13	11
3	6.2	2.0	3.2	1.9	1.0	2.6	2.2	6.8	13	13	13	11
4	6.4	2.7	3.1	1.7	1.9	2.9	2.2	10	13	15	14	9.2
5	7.3	2.7	3.0	1.7	1.9	3.0	3.0	11	10	13	13	9.7
6	7.3	2.0	3.0	1.6	1.9	3.2	5.2	9.1	15	11	15	8.2
7	6.5	2.0	2.9	1.6	1.9	3.2	5.1	9.0	15	10	13	8.8
8	6.9	2.0	2.0	1.6	2.1	3.4	5.0	8.8	14	10	13	8.7
9	6.0	2.0	2.0	1.7	1.9	3.3	5.2	9.0	15	11	15	8.2
10	6.7	2.5	3.1	1.9	2.9	3.3	5.1	8.1	15	13	15	8.4
11	10	2.0	2.0	1.9	2.4	3.3	4.9	7.4	15	11	14	8.0
12	9.2	2.5	2.0	1.8	7.1	3.2	5.4	6.5	15	12	14	7.9
13	6.9	2.5	2.9	1.9	3.0	3.2	5.4	6.0	10	11	14	8.0
14	6.7	2.0	2.5	2.1	2.2	3.3	5.5	6.0	14	13	10	7.4
15	9.0	2.0	2.7	1.9	2.2	3.3	5.9	9.6	14	12	10	7.3
16	8.0	2.0	2.9	1.9	2.2	3.0	5.6	9.5	14	12	17	7.3
17	6.7	2.0	2.0	2.0	2.3	2.9	4.2	12	17	14	17	6.5
18	6.7	2.0	2.5	2.0	2.3	2.0	3.9	12	14	14	15	6.2
19	8.0	2.5	2.5	2.0	2.3	2.0	4.2	12	14	10	14	6.0
20	9.3	2.5	2.5	2.2	2.9	2.0	4.1	13	10	15	14	6.9
21	6.9	2.7	2.5	2.1	2.5	2.0	5.0	13	10	15	13	6.0
22	6.9	2.0	2.5	2.0	2.5	2.5	5.9	13	13	14	14	6.1
23	8.8	2.5	2.7	2.2	2.5	2.5	5.4	13	13	15	15	5.9
24	7.0	2.7	2.5	2.1	2.5	2.5	5.2	14	13	15	14	6.1
25	3.4	2.7	2.0	1.9	2.7	2.5	4.0	14	15	10	14	6.7
26	3.1	2.7	2.0	2.0	2.7	2.5	6.0	14	15	10	14	7.1
27	3.0	2.9	2.0	2.0	2.0	2.5	7.1	15	14	15	13	6.7
28	2.9	2.0	2.4	2.0	2.0	2.4	6.1	14	13	15	13	6.2
29	2.9	2.9	2.4	2.0	2.0	2.2	5.0	13	14	14	13	6.0
30	2.9	3.4	2.2	1.9	---	2.4	7.4	15	13	15	13	6.2
31	2.0	---	1.9	1.9	---	2.2	---	10	---	15	12	---
TOTAL	230.6	89.9	83.7	50.2	70.9	87.6	105.6	347.9	432	420	436	229.3
MEAN	7.44	2.90	2.70	1.91	2.53	2.83	4.05	11.2	14.4	13.5	14.1	7.04
MAX	10	3.2	3.2	2.2	7.1	3.3	7.4	10	17	16	17	11
MIN	2.0	2.0	1.9	1.6	1.0	2.2	2.2	7.3	13	10	12	5.9
AC-FT	457	190	166	117	141	174	209	690	657	633	605	455

CAL YR 1978 TOTAL 2021.3 MEAN 7.18 MAX 22 MIN 1.9 AC-FT 5200
 1979 TOTAL 2023.3 MEAN 7.19 MAX 10 MIN 1.6 AC-FT 5200

CRAB CREEK BASIN

12472600 CRAB CREEK NEAR BEVERLY, WA

LOCATION.--Lat 46°49'48", long 119°49'48", in NW¼SW¼ sec.33, T.16 N., R.24 E., Grant County, Hydrologic Unit 17020015, on right bank 4.9 mi (7.9 km) east of Beverly and at mile 4.5 (7.2 km).

DRAINAGE AREA.--4,842 mi² (12,541 km²), of which 665 mi² (1,722 km²) in the vicinity of Soap Lake is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 500 ft (152 m), from topographic map.

REMARKS.--Water-discharge records good. Many diversions above station for irrigation. Flow largely regulated by Potholes Reservoir 41.3 mi (66.5 km) upstream. A major portion of flow is return flows, including trans-basin diversions, from parts of the Columbia Basin project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 370 ft³/s (10.5 m³/s) Feb. 8, 1979; maximum gage height, 5.97 ft (1.820 m) Feb. 16, 1969, backwater from ice; minimum discharge, 10 ft³/s (0.28 m³/s) Jan. 10, 1963, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 370 ft³/s (10.5 m³/s) Feb. 8; minimum daily, 115 ft³/s (3.26 m³/s) Jan. 7-9.

DISCHARGE IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	282	220	225	125	125	206	145	148	163	163	229	315
2	283	210	235	120	120	201	163	157	162	179	231	315
3	286	210	245	124	130	200	168	166	166	198	218	320
4	286	210	245	130	140	205	176	165	180	205	217	327
5	287	205	233	125	155	210	186	167	192	202	213	336
6	290	205	221	120	250	209	176	173	185	203	227	341
7	291	215	268	115	350	196	189	190	183	190	233	348
8	289	210	260	115	370	201	197	192	184	196	234	349
9	294	205	201	115	238	191	202	185	185	200	241	347
10	296	200	201	125	248	187	206	175	184	198	244	345
11	300	195	202	135	245	183	211	170	176	205	242	342
12	304	195	205	145	229	180	212	166	166	210	249	338
13	307	195	197	150	272	178	207	177	152	220	252	336
14	305	195	188	155	301	175	199	179	148	219	260	336
15	305	195	260	155	263	173	194	180	134	222	271	334
16	307	190	198	140	226	170	200	171	132	223	278	325
17	311	190	205	150	215	172	204	160	139	227	283	322
18	316	190	201	155	217	168	203	153	154	230	288	318
19	319	190	198	165	218	166	203	171	175	227	295	311
20	314	190	193	170	209	162	199	173	184	219	301	304
21	303	190	189	175	207	152	195	170	181	206	305	301
22	302	190	191	165	213	147	188	169	168	212	311	305
23	301	195	206	160	211	146	188	160	165	211	317	303
24	300	195	201	160	208	138	188	162	166	215	321	301
25	304	200	202	155	217	142	188	172	173	220	322	302
26	307	205	193	150	228	143	179	164	177	224	317	300
27	308	210	186	145	227	140	169	161	170	226	313	300
28	301	215	180	140	218	160	161	165	159	219	313	300
29	269	215	150	140	---	153	154	178	151	223	317	302
30	244	220	140	135	---	146	145	181	163	225	318	300
31	232	---	130	130	---	134	---	178	---	232	317	---
TOTAL	9143	6050	6152	4400	6250	5342	5595	5278	5079	6557	8477	9623
MEAN	295	202	198	142	203	172	187	170	169	212	273	321
MAX	319	220	245	175	370	201	212	192	192	232	322	349
MIN	232	190	138	115	120	134	145	148	132	163	213	300
AC-FT	18140	12000	12208	8730	12400	10600	11100	10470	10070	13010	16810	19090

CAL YR 1970 TOTAL 82124 MEAN 225 MAX 327 MIN 128 AC-FT 167900
WTH YR 1979 TOTAL 77946 MEAN 214 MAX 370 MIN 115 AC-FT 154600

CRAB CREEK BASIN

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12472600 CRAB CREEK NEAR BEVERLY, WA--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected at lower Crab Creek road bridge, 0.8 mi (1.3 km) upstream from gage.

PERIOD OF RECORD.--Water years 1959-72, 1975 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: August 1959 to September 1962, July 1968 to August 1970.

REMARKS.--Prior to 1975 samples collected at site 1.5 mi (2.4 km) upstream from gage. Water quality records published as 12472500 "near Smyrna" for period 1959-63.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CaCO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)
OCT - 1978											
10...	1405	308	600	8.3	13.3	25	6.0	12.8	210	0	44
NOV											
27...	1400	210	975	8.4	3.2	25	8.0	13.0	270	85	55
DEC											
11...	1400	201	1060	8.3	2.1	15	8.0	13.9	270	0	55
FEB - 1979											
26...	1120	229	914	8.7	6.6	30	32	10.9	240	0	53
MAR											
26...	1430	145	930	8.6	12.6	20	10	13.0	270	0	54
APR											
23...	1500	192	725	8.6	15.0	25	23	12.7	200	0	39
MAY											
07...	1415	193	700	8.4	16.2	30	42	10.9	210	0	41
JUN											
06...	1440	140	620	8.4	22.0	70	60	10.2	190	0	40
JUL											
23...	1415	215	625	8.4	23.6	30	20	8.8	200	0	41
AUG											
20...	1245	301	650	8.0	21.4	55	14	6.1	210	0	43
SEP											
10...	1410	345	745	8.1	19.3	45	4.0	9.2	210	0	41

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LILITY (MG/L AS CaCO3)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)
OCT - 1978											
10...	25	66	39	2.0	9.8	290	0	240	2.3	100	29
NOV											
27...	33	92	41	2.4	12	230	0	190	1.5	150	46
DEC											
11...	33	87	40	2.3	12	340	0	280	2.7	140	38
FEB - 1979											
26...	32	110	46	2.9	11	300	34	300	1.2	160	41
MAR											
26...	34	100	43	2.6	12	350	2	290	1.4	130	43
APR											
23...	25	71	42	2.2	10	270	--	220	1.1	100	27
MAY											
07...	25	70	41	2.1	9.5	280	0	210	1.7	100	27
JUN											
06...	23	57	38	1.8	8.8	230	13	210	1.6	81	20
JUL											
23...	24	60	38	1.8	8.4	250	0	210	1.6	89	25
AUG											
20...	25	72	41	2.2	11	260	0	230	4.5	130	30
SEP											
10...	27	74	41	2.2	11	--	--	250	--	96	28

CRAB CREEK BASIN

12472600 CRAB CREEK NEAR BEVERLY, WA--Continued

WATER QUALITY DATA

DATE	NITRO- GEN. NITRATE TOTAL (MG/L AS N)	NITRO- GEN. NITRITE TOTAL (MG/L AS N)	NITRO- GEN. NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN. AMMONIA TOTAL (MG/L AS N)	NITRO- GEN. ORGANIC TOTAL (MG/L AS N)	NITRO- GEN.AM- MONIA - ORGANIC TOTAL (MG/L AS N)	NITRO- GEN. TOTAL (MG/L AS N)	NITRO- GEN. TOTAL (MG/L AS NO3)	PHOS- PHORUS, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS PO4)
OCT * 1978										
10...	1.6	.02	1.6	.00	.78	.78	2.4	11	.088	.01
NOV										.63
27...	3.4	.04	3.4	.09	.73	.82	4.2	19	.160	.11
DEC										.34
11...	3.4	.04	3.4	.05	1.5	1.5	4.9	22	.178	.12
FEB * 1979										.37
26...	2.4	.10	2.5	.18	.92	1.1	3.6	16	.260	.08
MAR										.25
26...	2.3	.08	2.4	.03	.86	.89	3.3	15	.110	.09
APR										.28
23...	1.5	.04	1.5	.02	1.1	1.1	2.6	12	.110	.05
MAY										.15
07...	1.3	.08	1.4	.03	1.5	1.5	2.9	13	.150	.03
JUN										.09
04...	1.3	.16	1.5	.09	.85	.94	2.4	11	.190	.04
JUL										.12
23...	1.8	.10	1.9	.08	1.0	1.1	3.0	13	.170	.01
AUG										.03
29...	1.1	.06	1.2	.02	.29	.31	1.5	6.7	.160	.11
SEP										.34
10...	1.1	.08	1.2	.02	.58	.60	1.8	8.0	.180	.07

DATE	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CU)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	LEAD, DIS- SOLVED (UG/L AS PB)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT * 1978										
10...	7	50	<1	0	3	2	.0	0	0	<3
NOV										
27...	8	60	<1	0	0	10	.0	2	0	<3
DEC										
11...	7	60	<1	0	0	2	.0	2	0	<3
FEB * 1979										
26...	7	100	1	0	2	17	.1	1	0	10
MAR										
26...	8	0	0	0	0	0	.0	1	0	10
APR										
23...	5	50	3	0	2	8	.1	1	0	<3
MAY										
07...	6	0	0	0	1	0	.3	0	0	10
JUN										
04...	6	0	0	10	0	0	.1	1	0	10
JUL										
23...	4	0	0	0	2	11	--	1	0	10
AUG										
28...	6	70	<1	0	2	15	.0	1	0	6
SEP										
10...	7	60	0	20	4	4	.4	0	0	1

COLUMBIA RIVER MAIN STEM

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12472800 COLUMBIA RIVER BELOW PRIEST RAPIDS DAM, WA

LOCATION.--Lat 46°37'44", long 119°51'49", in SE¼NW¼ sec.7, T.13 N., R.24 E., Grant County, Hydrologic Unit 17020016, on left bank 2.6 mi (4.2 km) downstream from Priest Rapids Dam, 14.7 mi (23.7 km) south of Beverly, and at mile 594.5 (634.8 km).

DRAINAGE AREA.--96,000 mi² (249,000 km²), approximately.

PERIOD OF RECORD.--January 1917 to current year. January 1917 to September 1930, at site 3.4 mi (5.5 km) downstream, published as "at Vernita." October 1930 to July 27, 1959, at site 46.5 mi (74.8 km) upstream, published as "at Trinidad."

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1930, nonrecording gages at site 3.4 mi (5.5 km) downstream at datum 388.7 ft (118.48 m) National Geodetic Vertical Datum of 1929. Oct. 1, 1930, to July 27, 1959, water-stage recorder at site 46.5 mi (74.8 km) upstream at datum 499.3 ft (152.19 m) National Geodetic Vertical Datum of 1929 (river-profile survey).

REMARKS.--Records excellent. Diversions for irrigation of about 500,000 acres (2,020 km²) above station. Flow regulated by 10 major reservoirs and numerous smaller reservoirs and powerplants.

AVERAGE DISCHARGE.--62 years, 119,870 ft³/s (3,396 m³/s), 86,870,000 acre-ft/yr (107,100 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 692,600 ft³/s (19,600 m³/s) June 12, 1948, gage height, 59.35 ft (18.090 m), site and datum then in use; minimum, 4,120 ft³/s (117 m³/s) Feb. 10, 1932, gage height, 11.40 ft (3.475 m) site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1894, reached a discharge of about 740,000 ft³/s (21,000 m³/s), based on information obtained at other points.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 195,000 ft³/s (5,520 m³/s) Feb. 6, elevation, 411.24 ft (125.346 m); minimum, 34,800 ft³/s (986 m³/s) Aug. 17, elevation, 396.14 ft (120.743 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	118000	117000	94700	152000	114000	105000	96400	111000	125000	71200	100000	70200
2	120000	116000	83000	143000	124000	116000	115000	99400	91300	103000	104000	51800
3	121000	99400	66100	125000	125000	106000	126000	119000	88400	94400	106000	53700
4	114000	83400	99000	130000	131000	76900	105000	134000	130000	69000	89400	82000
5	110000	81800	111000	134000	116000	97700	108000	117000	119000	91200	57700	94200
6	112000	110000	117000	131000	144000	79700	104000	90700	111000	81900	95100	90200
7	99300	94900	124000	131000	111000	87000	122000	116000	113000	87000	93300	93800
8	95700	97800	122000	131000	118000	85800	108000	129000	119000	68700	90200	81600
9	111000	109000	83000	114000	114000	79500	124000	126000	99700	186000	95700	72900
10	99800	121000	80200	115000	97400	82000	115000	136000	83300	99700	103000	88200
11	110000	106000	111000	111000	77200	51500	104000	137000	116000	96800	86800	85900
12	99500	95700	110000	124000	109000	94500	115000	143000	118000	95100	75500	86800
13	79500	114000	109000	123000	83400	76300	123000	146000	123000	97900	106000	81400
14	91300	123000	96700	108000	98300	98800	105000	147000	119000	71700	96100	86000
15	90500	133000	113000	108000	108000	97600	78900	131000	102000	62400	95500	68400
16	99400	139000	106000	121000	113000	101000	110000	131000	89000	94200	80800	66100
17	98600	104000	67400	127000	97200	96400	109000	124000	63200	105000	80300	74400
18	100000	106000	83000	127000	95800	75700	113000	139000	102000	102000	83200	78100
19	111000	118000	101000	109000	111000	82400	117000	128000	97700	91300	50500	74000
20	105000	120000	102000	106000	116000	81700	94300	108000	102000	95400	90200	74000
21	91200	115000	94700	110000	113000	98700	74000	123000	96300	92000	88200	80200
22	89800	111000	93600	130000	121000	99000	72700	139000	96400	77700	98900	61300
23	76500	114000	82300	130000	127000	98400	93000	144000	83500	103000	91200	57400
24	102000	95400	64300	120000	121000	98300	105000	142000	74600	109000	92700	72400
25	103000	79500	73100	125000	84600	81100	91700	131000	108000	113000	67800	82200
26	88500	91900	101000	134000	108000	118000	91900	126000	111000	111000	62700	83300
27	102000	106000	117000	119000	114000	121000	89200	112000	113000	122000	99000	79800
28	91800	110000	122000	116000	113000	145000	82600	114000	114000	90000	97800	75600
29	84900	106000	131000	142000	---	132000	73200	135000	108000	71600	93700	71800
30	103000	95100	148000	145000	---	94100	107000	141000	75400	113000	93200	53900
31	119000	---	137000	138000	---	126000	---	126000	---	106000	90700	---
TOTAL	3135500	3212900	3143100	3885000	3110900	2988100	3072900	3945100	3084900	2892200	2754400	2271600
MEAN	101100	107100	101400	125300	111100	96390	102400	127300	103000	93300	88850	75720
MAX	120000	139000	148000	152000	146000	145000	146000	147000	130000	122000	106000	94200
MIN	70500	79500	64300	106000	77200	51500	72700	90700	63200	62400	50500	51800
AC-FT	6219000	6373000	6234000	7706000	6170000	5927000	6095000	7825000	6129000	5737000	5463000	4506000
CAL YR 1978 TOTAL	41336000	MEAN	113200	MAX	102000	MIN	54900	AC-FT	81990000			
WTR YR 1979 TOTAL	37501500	MEAN	102700	MAX	152000	MIN	50500	AC-FT	74380000			

COLUMBIA RIVER MAIN STEM

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 46°38'34", long 119°43'54", in NW¼SE¼ sec.6, T.13 N., R.25 E., Grant County, Hydrologic Unit 17020016, at State Highway 24 Vernita Bridge crossing, 9.0 mi (14.5 km) downstream from Priest Rapids Dam, and at mile 388.1 (624.5 km).

DRAINAGE AREA.--96,000 mi² (248,600 km²), approximately.

PERIOD OF RECORD.--Water years 1962-63, 1972, 1974 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: July 1974 to current year.

INSTRUMENTATION.--Temperature recorder since July 1974.

REMARKS.--October 1971 to September 1972, at site 6.4 mi (10.3 km) upstream, published as 12472800 "below Priest Rapids Dam." Prior to October 1971 published as 12472800 "at Vernita Ferry."

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum, 20.5°C Aug. 16-21, 1977; minimum, 0°C Feb. 1-6, 1979.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum, 20.0°C Aug. 22, 26, 28-30, Sept. 1, 3-7; minimum, 0°C Feb. 1-6.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-WF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CaCO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)
OCT , 1978												
03...	1100	116000	118	7.5	17.1	1.0	9.6	<1	3	60	7	18
NOV												
08...	1130	100000	123	--	12.1	1.0	10.0	1	2	64	12	19
DEC												
14...	1030	77200	138	8.4	6.0	.40	11.7	1	1	68	14	20
JAN , 1979												
16...	1330	131000	140	7.6	1.2	.50	14.6	1	1	69	13	20
MAR												
01...	1000	126000	153	8.0	1.9	.50	14.5	<1	71	76	14	22
21...	1125	106000	146	8.5	3.9	2.8	15.8	1	2	63	3	23
APR												
11...	1100	49200	147	8.2	5.0	4.3	12.0	<1	<1	76	22	22
MAY												
14...	1030	141000	156	8.8	10.0	2.2	15.0	<1	<1	69	17	20
JUN												
12...	1000	113000	109	--	14.6	2.4	13.1	13	1	62	19	18
JUL												
05...	1130	60300	125	--	16.6	2.1	10.9	<1	2	59	6	17
AUG												
28...	1100	51500	131	8.2	19.6	3.4	9.6	3	6	68	15	20
SEP												
13...	1000	38100	134	--	18.7	1.1	9.2	1	1	61	11	18

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
OCT , 1978												
03...	3.7	2.0	7	.1	.7	53	8.3	.9	.1	5.1	71	71
NOV												
08...	3.9	1.8	6	.1	.7	52	12	.9	.1	4.7	81	74
DEC												
14...	4.4	2.1	6	.1	1.1	54	12	1.3	.1	4.7	76	78
JAN , 1979												
16...	4.6	2.1	6	.1	.6	56	13	1.4	.1	4.7	91	80
MAR												
01...	5.1	2.3	6	.1	.6	62	16	1.4	.1	5.2	81	80
21...	1.3	2.3	7	.1	.9	60	13	1.1	.1	4.7	90	82
APR												
11...	5.2	2.1	6	.1	.9	54	15	1.6	.2	5.0	93	85
MAY												
14...	4.6	2.4	7	.1	.7	52	14	2.1	.2	3.7	75	79
JUN												
12...	4.1	1.9	8	.1	.7	43	11	1.7	.1	3.4	70	67
JUL												
05...	4.0	2.3	10	.1	.7	53	12	1.3	.1	3.2	73	73
AUG												
28...	4.3	2.7	8	.1	.7	53	13	1.0	.1	4.1	77	78
SEP												
13...	3.9	2.2	7	.1	.8	50	14	.9	.2	4.6	81	75

COLUMBIA RIVER MAIN STEM

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12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA--Continued

WATER QUALITY DATA

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C. SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC DIS. TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)
OCT + 1978												
03...	.10	22200	8	.08	.00	.08	.02	.27	.29	.07	.22	.37
NOV												
08...	.11	21900	2	--	--	.09	.01	.12	.13	.06	.07	.22
DEC												
14...	.10	15800	2	--	--	.11	.01	.14	.15	.03	.12	.26
JAN + 1979												
16...	.12	32200	3	.12	.00	.12	.00	.11	.11	.02	.09	.23
MAR												
01...	.11	27600	2	--	--	.15	.01	.14	.15	.09	.06	.30
21...	.12	25800	0	--	--	.05	.00	.08	.08	.04	.04	.13
APR												
11...	.13	24900	0	.12	.02	.14	.01	.10	.11	.07	.04	.25
MAY												
14...	.10	28600	4	--	--	.00	.01	.19	.20	.15	.05	.20
JUN												
12...	.10	21400	7	--	--	.05	.00	.43	.43	.06	.37	.48
JUL												
05...	.10	11900	9	.00	.00	.00	.00	.10	.10	.10	.00	.10
AUG												
28...	.10	10700	0	--	--	.08	.01	.45	.46	.20	.26	.54
SEP												
13...	.11	8330	3	--	--	.28	.01	.61	.62	.42	.20	.90

DATE	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	
OCT + 1978											
03...	1.6	.020	.010	.01	.03	--	2.2	.2	2	626	97
NOV											
08...	.97	.030	.030	--	--	1.6	--	--	2	540	85
DEC											
14...	1.2	.040	.040	--	--	1.7	--	--	1	208	93
JAN + 1979											
16...	1.0	.040	.030	.00	.00	--	1.7	.1	2	707	--
MAR											
01...	1.3	.050	.050	--	--	.0	--	--	3	1020	85
21...	.58	.010	.010	--	--	1.4	--	--	3	859	90
APR											
11...	1.1	.020	.010	.00	.00	--	3.7	.8	4	1070	49
MAY											
14...	.89	.020	.010	--	--	8.6	--	--	7	2670	--
JUN											
12...	2.1	.030	.010	--	--	3.1	--	--	7	2140	98
JUL											
05...	.44	.020	.000	.01	.03	--	3.8	.2	6	977	--
AUG											
28...	2.4	.020	.020	--	--	1.3	--	--	7	973	95
SEP											
13...	4.0	.030	.030	--	--	4.7	--	--	2	206	100

DATE	CHRO- MIUM, SUS- PENDED RECOV. (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ENABLE (UG/L AS CO)	COBALT, SUS- PENDED RECOV- ENABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ENABLE (UG/L AS CU)	COPPER, SUS- PENDED RECOV- ENABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ENABLE (UG/L AS FE)	IRON, SUS- PENDED RECOV- ENABLE (UG/L AS FE)
OCT + 1978										
03...	0	0	0	0	0	5	5	0	100	80
JAN + 1979										
16...	0	0	1	0	<3	4	3	1	80	70
APR										
11...	0	0	0	0	<3	12	12	0	130	100
JUL										
05...	0	0	0	0	<3	5	5	0	80	0

COLUMBIA RIVER MAIN STEM

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA--Continued

WATER QUALITY DATA

		PERI-PHYTON BIONASS ASH		PERI-PHYTON BIONASS DRY WEIGHT		CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM	LENGTH OF EXPOSURE (DAYS)	
DATE	TIME	WEIGHT G/50 G	WEIGHT G/50 G	WEIGHT G/50 G	WEIGHT G/50 G	(MG/M2)	(MG/M2)		
OCT , 1978									
03...	1100	8.90	13.5	24.5	7.92	28			
JAN , 1979									
08...	1100	.000	.000	.000	.000	25			
11...	1100	.550	.710	.230	.000	21			
05...	1130	2.44	2.76	.320	.000	23			

		ARSENIC TOTAL (UG/L AS AS)		ARSENIC DIS-SOLVED (UG/L AS AS)		BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)		BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)		BARIUM, DIS-SOLVED (UG/L AS BA)		CADMIUM, TOTAL RECOV-ERABLE (UG/L AS CD)		CADMIUM, SUS-PENDED RECOV-ERABLE (UG/L AS CD)		CADMIUM, DIS-SOLVED (UG/L AS CD)		CHROMIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	
DATE	TIME	AS	AS	AS	AS	AS	BA	AS	BA	AS	BA	AS	CD	AS	CD	AS	CD	AS	CR
OCT , 1978																			
03...	1100	1	1	0	0	0	0	0	0	0	0	--	--	--	--	--	--	0	0
JAN , 1979																			
16...	1330	1	1	0	0	40	1	0	2	0	0	1	0	2	0	0	0	0	0
11...	1100	1	1	0	0	40	3	2	<1	0	0	1	0	<1	0	0	0	0	0
05...	1130	1	0	0	0	30	1	0	<1	0	0	1	0	<1	0	0	0	0	0

		IRON, DIS-SOLVED (UG/L AS FE)		LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)		LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)		LEAD, DIS-SOLVED (UG/L AS PB)		MANGANESE, TOTAL RECOV-ERABLE (UG/L AS MN)		MANGANESE, SUS-PENDED RECOV-ERABLE (UG/L AS MN)		MANGANESE, DIS-SOLVED (UG/L AS MN)		MERCURY, TOTAL RECOV-ERABLE (UG/L AS HG)		MERCURY, SUS-PENDED RECOV-ERABLE (UG/L AS HG)		MERCURY, DIS-SOLVED (UG/L AS HG)	
DATE	TIME	AS	FE	AS	PB	AS	PB	AS	PB	AS	MN	AS	MN	AS	MN	AS	HG	AS	HG	AS	HG
OCT , 1978																					
03...	20	--	--	--	--	20	20	0	.0	.0	.0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
JAN , 1979																					
16...	10	19	17	2	0	0	5	.0	.0	.0	.0	5	.0	.0	.0	.0	.0	.0	.0	.0	.0
11...	30	73	61	12	10	7	3	.1	.1	.0	.0	3	.1	.1	.0	.0	.1	.1	.0	.0	.0
05...	100	8	8	0	20	20	2	.1	.1	.0	.0	2	.1	.1	.0	.0	.1	.1	.0	.0	.0

		SELENIUM, TOTAL RECOV-ERABLE (UG/L AS SE)		SELENIUM, SUS-PENDED RECOV-ERABLE (UG/L AS SE)		SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)		SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)		SILVER, DIS-SOLVED (UG/L AS AG)		ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)		ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)		ZINC, DIS-SOLVED (UG/L AS ZN)	
DATE	TIME	AS	SE	AS	SE	AS	AG	AS	AG	AS	AG	AS	ZN	AS	ZN	AS	ZN
OCT , 1978																	
03...	0	0	0	0	0	0	0	0	0	0	0	10	0	10	0	0	0
JAN , 1979																	
16...	0	0	0	0	0	0	0	0	0	0	0	40	10	30	0	0	0
11...	0	0	0	0	0	0	0	0	0	0	0	70	50	20	0	0	0
05...	0	0	0	0	0	0	0	0	0	0	0	30	30	4	0	0	0

COLUMBIA RIVER MAIN STEM

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12471900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA--Continued

TEMPERATURE (IN °C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	17.5	17.0	17.0	13.0	12.5	13.0	8.0	8.0	8.0	---	---	---
2	17.0	17.0	17.0	12.5	12.5	12.5	8.0	8.0	8.0	---	---	---
3	17.0	17.0	17.0	12.5	12.5	12.5	8.0	8.0	8.0	---	---	---
4	17.5	17.0	17.0	12.5	12.0	12.5	8.0	8.0	8.0	---	---	---
5	17.0	17.0	17.0	12.0	12.0	12.0	8.0	7.5	7.5	---	---	---
6	17.0	16.5	17.0	12.0	11.5	12.0	7.5	7.5	7.5	---	---	---
7	16.5	16.5	16.5	12.0	12.0	12.0	7.0	7.0	7.0	---	---	---
8	16.5	16.5	16.5	12.0	12.0	12.0	7.0	7.0	7.0	---	---	---
9	16.5	16.5	16.5	12.0	11.5	11.5	7.0	6.5	7.0	---	---	---
10	16.0	16.0	16.0	11.5	11.0	11.0	6.5	6.5	6.5	---	---	---
11	16.5	16.0	16.0	11.0	10.5	11.0	6.5	6.5	6.5	---	---	---
12	16.0	15.5	15.5	11.0	10.5	10.5	6.5	6.0	6.5	---	---	---
13	15.5	15.5	15.5	10.5	10.0	10.5	6.5	6.0	6.0	---	---	---
14	15.5	15.5	15.5	10.5	10.0	10.5	6.0	6.0	6.0	---	---	---
15	16.0	15.5	15.5	10.0	9.5	10.0	---	---	---	---	---	---
16	15.5	15.5	15.5	9.5	9.5	9.5	---	---	---	1.0	1.0	1.0
17	15.5	15.5	15.5	9.5	9.5	9.5	---	---	---	1.0	1.0	1.0
18	15.5	15.0	15.0	9.5	9.0	9.5	---	---	---	1.0	1.0	1.0
19	15.0	15.0	15.0	9.0	9.0	9.0	---	---	---	1.0	1.0	1.0
20	15.0	15.0	15.0	8.5	8.0	8.5	---	---	---	1.0	1.0	1.0
21	15.0	14.5	15.0	8.5	8.5	8.5	---	---	---	1.0	1.0	1.0
22	15.0	14.5	14.5	8.5	8.5	8.5	---	---	---	1.0	1.0	1.0
23	14.5	14.5	14.5	8.5	8.5	8.5	---	---	---	1.0	1.0	1.0
24	14.5	14.0	14.0	9.0	8.5	8.5	---	---	---	1.0	1.0	1.0
25	14.5	14.0	14.0	8.5	8.5	8.5	---	---	---	1.0	1.0	1.0
26	14.0	14.0	14.0	8.5	8.5	8.5	---	---	---	1.0	1.0	1.0
27	14.0	13.5	14.0	8.5	8.0	8.5	---	---	---	1.0	1.0	1.0
28	13.5	13.5	13.5	8.0	8.0	8.0	---	---	---	1.0	1.0	1.0
29	13.5	13.0	13.5	8.0	8.0	8.0	---	---	---	1.0	.5	.5
30	13.0	13.0	13.0	8.0	8.0	8.0	---	---	---	.5	.5	.5
31	13.0	13.0	13.0	---	---	---	---	---	---	.5	.5	.5
MONTH	17.5	13.0	15.5	13.0	8.0	10.0	8.0	6.0	7.0	1.0	.5	1.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	.5	.0	.5	2.0	1.0	2.0	4.5	4.0	4.5	9.5	9.0	9.5
2	.5	.0	.5	2.0	2.0	2.0	4.5	4.5	4.5	.5	0.0	0.5
3	.5	.0	.5	2.0	2.0	2.0	4.5	4.5	4.5	10.0	9.5	9.5
4	.5	.0	.5	2.0	2.0	2.0	4.5	4.5	4.5	9.5	9.5	9.5
5	.5	.0	.5	2.0	2.0	2.0	---	---	---	10.0	9.5	9.5
6	.5	.0	.5	2.5	2.0	2.0	---	---	---	10.0	9.5	10.0
7	.5	.0	.5	2.5	2.5	2.5	---	---	---	10.0	9.5	9.5
8	.5	.0	.5	2.0	2.5	2.5	---	---	---	9.5	9.5	9.5
9	.5	.5	.5	2.0	2.5	2.5	---	---	---	9.5	9.5	9.5
10	.5	.5	.5	3.0	2.5	2.5	---	---	---	9.5	9.5	9.5
11	.5	.5	.5	3.0	2.5	2.5	5.5	5.5	5.5	9.5	9.5	9.5
12	.5	.5	.5	3.0	3.0	3.0	5.5	5.0	5.0	10.0	9.5	9.5
13	1.0	.5	1.0	3.5	3.0	3.0	5.5	5.0	5.5	10.0	10.0	10.0
14	1.5	1.0	1.5	3.0	3.0	3.0	5.5	5.5	5.5	10.5	10.0	10.0
15	1.0	1.0	1.0	3.0	3.0	3.0	5.5	5.5	5.5	10.5	10.0	10.0
16	1.5	1.0	1.0	3.5	3.0	3.0	5.5	5.5	5.5	10.5	10.0	10.5
17	1.5	1.5	1.5	3.5	3.0	3.0	5.5	5.5	5.5	10.5	10.0	10.5
18	1.5	1.5	1.5	3.5	3.0	3.0	5.5	5.5	5.5	10.5	10.5	10.5
19	1.5	1.5	1.5	3.5	3.0	3.0	6.0	5.5	5.5	11.0	10.5	10.5
20	1.5	1.5	1.5	4.0	3.0	3.0	6.0	6.0	6.0	11.0	10.5	11.0
21	1.5	1.5	1.5	4.0	3.0	4.0	6.5	6.0	6.5	11.5	11.0	11.5
22	1.5	1.5	1.5	4.0	4.0	4.0	6.5	6.5	6.5	12.0	11.5	11.5
23	1.5	1.5	1.5	4.0	4.0	4.0	7.0	6.5	7.0	12.0	12.0	12.0
24	1.5	1.5	1.5	4.5	4.0	4.0	7.0	6.5	7.0	12.5	12.0	12.0
25	1.5	1.5	1.5	4.5	4.0	4.5	7.5	7.0	7.0	12.5	12.0	12.5
26	1.5	1.5	1.5	4.5	4.0	4.0	8.0	7.0	7.5	12.5	12.0	12.5
27	1.5	1.5	1.5	4.5	4.0	4.5	8.0	7.5	8.0	12.5	12.0	12.0
28	2.0	1.5	1.5	4.5	4.0	4.0	8.5	8.0	8.0	12.0	11.5	12.0
29	---	---	---	4.5	4.0	4.5	9.0	8.5	8.5	12.0	11.5	11.5
30	---	---	---	4.5	4.0	4.5	9.0	8.5	8.5	12.0	12.0	12.0
31	---	---	---	4.5	4.0	4.5	---	---	---	12.5	12.0	12.0
MONTH	2.0	.0	1.0	4.5	1.0	3.0	9.0	4.0	6.0	12.5	9.0	10.5

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO AUGUST 1979

NOTE: * = DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
 * = OBSERVED ORGANISM. MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

COLUMBIA RIVER MAIN STEM

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12473529 COLUMBIA RIVER AT RICHLAND, WA

LOCATION.--Lat 46°18'40", long 119°15'28", in NW¼NW¼ sec.36, T.10 N., R.20 E., Benton County, Hydrologic Unit 17020616, at city of Richland pumping plant, 4.8 mi (7.7 km) upstream from Yakima River.

DRAINAGE AREA.--90,900 mi² (231,000 km²), approximately.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: July 1974 to current year.

INSTRUMENTATION.--Water-temperature recorder with probe located at city of Richland pumping plant pier near right bank from July 1974 until January 1977. Since January 1977, recorder probe located 200 ft (61 m) streamward from plant.

REMARKS.--Water temperatures as recorded for the period July 1974 to January 1977 did not represent mean stream temperatures (see previous state reports for correlation between thermal load measurements and recorded temperatures). Temperature probe relocated January 1977 reflect mean river water temperature.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum, 21.5°C Aug. 17-20, 1977; minimum, 0.5°C Feb. 1-4, 1979.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum, 21.0°C Aug. 17, 18, 20, 22, 26; minimum, 0.5°C Feb. 1-4.

WATER QUALITY DATA

DATE	TIME	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN-DISSOLVED (MG/L)	COLIFORMS: FECAL (0.7 UM-HF (COLS./100 ML)	STREPTOCOCCI: FECAL (COLS. PER 100 ML)	HARDNESS (MG/L AS CaCO3)	HARDNESS: NONCARBONATE (MG/L AS CaCO3)
OCT * 1978										
04...	0930	123	8.6	17.1	.60	9.5	1	5	60	7
JAN * 1979										
09...	1100	102	7.7	1.1	.80	10.4	2	16	69	11
APR										
12...	1100	150	8.4	5.4	3.6	19.0	<1	<1	76	10
JUL										
06...	0930	120	8.3	17.3	2.3	10.3	10	15	99	14

DATE	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM DIS-SOLVED (MG/L AS Mg)	SODIUM DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORPTION RATIO	POTAS-SIUM DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE DIS-SOLVED (MG/L AS F)
OCT * 1978									
04...	18	3.7	2.0	7	.1	.7	53	10	1.9
JAN * 1979									
09...	20	4.7	2.2	6	.1	.6	50	12	2.5
APR									
12...	22	5.2	2.2	6	.1	.9	60	13	1.5
JUL									
06...	17	4.1	2.3	8	.1	.7	45	12	1.1

DATE	SILICA DIS-SOLVED (MG/L AS SiO2)	SOLIDS RESIDUE AT 100 DEG. C (MG/L)	SOLIDS SUM OF CONSTITUENTS (MG/L)	SOLIDS DIS-SOLVED (TONS PER AC-FT)	SOLIDS RESIDUE AT 105 DEG. C (MG/L)	NITRO-GEN: NITRATE (MG/L AS N)	NITRO-GEN: NITRITE (MG/L AS N)	NITRO-GEN: NO2+NO3 (MG/L AS N)	NITRO-GEN: AMMONIA (MG/L AS N)	NITRO-GEN: ORGANIC (MG/L AS N)
OCT * 1978										
04...	4.8	70	73	.10	7	.00	.00	.00	.01	.26
JAN * 1979										
09...	4.9	84	82	.12	3	.15	.00	.15	.01	.00
APR										
12...	4.8	85	86	.12	8	.05	.02	.07	.01	.13
JUL										
06...	3.8	77	67	.10	8	.01	.02	.03	.00	.01

DATE	NITRO-GEN: AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN: 64% (MG/L AS N)	NITRO-GEN: TOTAL (MG/L AS NO3)	PHOS-PHORUS: TOTAL (MG/L AS P)	PHOS-PHORUS: DISSOLVED (MG/L AS P)	PHOS-PHATE: DISSOLVED (MG/L AS PO4)	CARBON: ORGANIC TOTAL (MG/L AS C)	CARBON: ORGANIC DISSOLVED (MG/L AS C)	CARBON: ORGANIC PENDED TOTAL (MG/L AS C)	SEDIMENT: SUSPENDED (MG/L)
OCT * 1978										
04...	.27	.20	1.0	.020	.01	.03	2.4	--	--	2
JAN * 1979										
09...	.09	.26	1.1	.040	.00	.00	--	4.4	.2	3
APR										
12...	.14	.21	.92	.010	.00	.00	--	2.1	.6	6
JUL										
06...	.01	.04	2.8	.020	.01	.03	3.6	--	--	8

COLUMBIA RIVER MAIN STEM

12473520 COLUMBIA RIVER AT RICHLAND, WA--Continued

WATER QUALITY DATA

DATE	TIME	ARSENIC		ARSENIC		CADMIUM		CHROMIUM		COPPER	
		TOTAL	PENDE	TOTAL	DIS-	TOTAL	RECOV-	TOTAL	RECOV-	TOTAL	RECOV-
		(UG/L	AS)	(UG/L	AS)	(UG/L	ERABLE	(UG/L	ERABLE	(UG/L	ERABLE
		AS AS)		AS AS)	AS AS)	AS CD)		AS CR)		AS CU)	
OCT + 1978											
04...	0930	1	--	1		7		0		0	
JAN + 1979											
09...	1100	1	--	1		2		20		2	
APR											
12...	1100	1	0	1		0		0		0	
JUL											
06...	0930	1	0	0		1		0		0	

DATE	COPPER		IRON		LEAD		MANGANESE		MERCURY		SELENIUM		ZINC	
	TOTAL	RECOV-	TOTAL	RECOV-	TOTAL	RECOV-	TOTAL	RECOV-	TOTAL	RECOV-	TOTAL	RECOV-	TOTAL	RECOV-
	(UG/L	ERABLE	(UG/L	ERABLE	(UG/L	ERABLE	(UG/L	ERABLE	(UG/L	ERABLE	(UG/L	ERABLE	(UG/L	ERABLE
	AS CU)		AS FE)		AS PB)		AS MN)		AS HG)		AS SE)		AS ZN)	
OCT + 1978														
04...	14		130		110		20		.0		0		20	
JAN + 1979														
09...	19		130		33		10		.3		0		40	
APR														
12...	2		100		130		20		.1		0		40	
JUL														
06...	5		90		27		20		.1		0		30	

TEMPERATURE (DEG. C) OF WATER: WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	17.0	16.5	17.0	13.0	12.5	12.5	7.5	7.5	7.5	3.0	2.5	2.5
2	17.5	16.5	17.0	12.5	12.0	12.5	7.5	7.5	7.5	2.5	2.5	2.5
3	17.5	17.0	17.0	12.5	12.5	12.5	7.5	7.5	7.5	2.5	2.0	2.0
4	17.5	17.0	17.5	12.5	12.0	12.5	7.5	7.5	7.5	2.0	2.0	2.0
5	17.5	17.0	17.0	12.0	11.5	12.0	7.5	7.0	7.0	2.0	2.0	2.0
6	17.5	16.5	17.0	12.0	11.5	11.5	7.0	6.5	7.0	2.0	1.5	1.5
7	17.0	16.5	16.5	12.0	11.5	11.5	6.5	6.0	6.5	1.5	1.0	1.0
8	17.0	16.5	16.5	12.0	12.0	12.0	6.0	6.0	6.0	1.0	1.0	1.0
9	17.0	16.5	16.5	11.5	11.0	11.5	6.0	6.0	6.0	1.0	1.0	1.0
10	16.5	16.5	16.5	11.0	9.5	10.0	6.0	6.0	6.0	1.0	1.0	1.0
11	16.5	16.0	16.0	10.0	9.5	10.0	6.0	6.0	6.0	1.0	1.0	1.0
12	16.0	15.5	15.5	10.0	9.5	10.0	6.0	5.5	5.5	1.0	1.0	1.0
13	15.5	15.5	15.5	9.5	9.5	9.5	5.5	5.5	5.5	1.5	1.5	1.5
14	16.0	15.0	15.5	9.5	9.5	9.5	5.5	5.5	5.5	1.5	1.5	1.5
15	15.5	15.5	15.5	9.5	9.5	9.5	5.5	5.5	5.5	1.5	1.5	1.5
16	16.0	15.5	15.5	9.5	9.5	9.5	5.5	5.0	5.0	1.5	1.5	1.5
17	16.0	15.5	15.5	9.5	9.0	9.5	5.0	5.0	5.0	1.5	1.5	1.5
18	16.0	15.5	15.5	9.5	8.0	9.0	5.5	5.5	5.5	1.5	1.5	1.5
19	15.5	15.0	15.5	8.0	7.0	7.5	5.5	5.0	5.0	1.5	1.5	1.5
20	15.5	15.0	15.5	7.5	7.0	7.5	5.0	5.0	5.0	1.5	1.5	1.5
21	15.0	14.5	15.0	6.0	7.5	8.0	5.0	5.0	5.0	1.5	1.5	1.5
22	14.5	14.0	14.5	6.0	8.0	8.0	5.0	5.0	5.0	1.5	1.5	1.5
23	14.5	14.5	14.5	6.0	8.0	8.0	5.0	5.0	5.0	1.5	1.5	1.5
24	14.5	14.0	14.5	6.5	8.0	8.5	5.5	5.5	5.5	1.5	1.5	1.5
25	14.0	13.5	14.0	6.5	8.0	8.5	5.5	5.0	5.0	1.5	1.5	1.5
26	14.0	13.5	14.0	6.0	8.0	8.0	5.0	5.0	5.0	1.5	1.5	1.5
27	14.0	13.5	13.5	6.0	7.5	8.0	5.0	4.5	4.5	1.5	1.5	1.5
28	13.5	13.5	13.5	7.5	7.5	7.5	4.5	4.0	4.5	1.5	1.5	1.5
29	13.5	13.0	13.0	7.5	7.5	7.5	4.0	3.5	4.0	1.5	1.0	1.0
30	13.0	12.5	12.5	7.5	7.5	7.5	4.0	3.5	3.5	1.0	1.0	1.0
31	13.0	12.5	12.5	---	---	---	3.5	3.0	3.0	1.0	1.0	1.0
MONTH	17.5	12.5	15.5	13.0	7.0	9.5	7.5	3.0	5.5	3.0	1.0	1.5

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DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	1.0	.5	.5	3.0	2.5	3.0	5.0	4.5	4.5	10.0	9.5	10.0
2	.5	.5	.5	3.0	2.5	3.0	5.0	4.5	4.5	10.5	10.0	10.0
3	.5	.5	.5	3.0	2.5	3.0	5.0	4.5	4.5	11.0	10.5	10.5
4	.5	.5	.5	3.5	2.5	3.0	5.5	4.5	5.0	11.0	10.5	10.5
5	1.0	1.0	1.0	3.5	3.5	3.5	5.5	5.0	5.5	10.5	10.0	10.0
6	1.5	1.0	1.0	3.5	3.0	3.5	5.5	5.0	5.5	10.5	10.0	10.0
7	1.5	1.5	1.5	4.0	3.5	4.0	5.5	5.0	5.5	11.0	10.5	10.5
8	1.5	1.5	1.5	4.0	3.5	4.0	5.5	5.0	5.5	11.0	10.0	10.5
9	2.0	1.5	1.5	4.0	3.5	4.0	5.5	5.0	5.5	10.5	10.0	10.0
10	2.0	2.0	2.0	4.0	3.5	4.0	5.5	5.0	5.5	10.5	10.0	10.0
11	2.0	2.0	1.5	4.5	3.5	4.0	6.0	5.5	5.5	10.5	10.0	10.0
12	2.0	2.0	2.0	4.5	4.5	4.5	6.0	5.5	5.5	11.0	10.0	10.5
13	2.5	2.0	2.5	4.5	3.5	4.0	6.0	5.5	5.5	11.5	10.0	11.0
14	2.5	2.5	2.5	4.5	4.0	4.5	6.0	5.5	5.5	11.5	10.5	11.0
15	2.5	2.5	2.5	4.0	4.0	4.0	6.0	5.5	6.0	11.5	10.5	11.0
16	2.5	2.5	2.5	4.0	4.0	4.0	6.0	6.0	6.0	11.5	11.0	11.0
17	2.5	2.5	2.5	4.0	3.5	4.0	6.0	5.5	6.0	12.0	11.0	11.5
18	3.0	2.5	2.5	4.5	4.5	4.5	6.0	5.5	6.0	12.0	11.0	11.5
19	3.0	3.0	3.0	5.0	4.5	4.5	6.0	5.5	6.0	12.0	11.0	11.5
20	3.0	2.5	2.5	4.5	4.0	4.5	6.5	6.0	6.5	12.0	11.0	11.5
21	2.5	2.5	2.5	4.5	4.0	4.5	7.0	6.5	6.5	13.0	11.5	12.5
22	2.5	2.5	2.5	4.5	4.0	4.0	7.5	7.0	7.0	13.0	12.0	12.5
23	2.5	2.5	2.5	4.5	4.0	4.5	7.5	7.5	7.5	13.0	12.5	12.5
24	2.5	2.5	2.5	5.0	4.0	4.5	7.5	7.0	7.5	13.5	12.5	13.0
25	3.0	2.5	2.5	5.0	4.5	5.0	8.5	7.5	8.0	14.0	13.0	13.5
26	3.5	3.0	3.0	7.0	5.0	5.0	9.0	8.0	8.5	13.5	13.0	13.5
27	3.0	3.0	3.0	5.0	4.5	4.5	9.5	8.5	9.0	13.5	12.5	13.0
28	3.0	3.0	3.0	4.5	4.5	4.5	10.0	9.0	9.5	13.0	12.5	12.5
29	---	---	---	4.5	4.0	4.5	10.5	9.5	10.0	13.0	12.0	12.5
30	---	---	---	4.5	4.5	4.5	10.5	9.5	10.0	13.0	12.0	12.5
31	---	---	---	5.0	4.5	4.5	---	---	---	13.5	12.5	13.0
MONTH	3.5	.5	2.0	5.0	2.5	4.0	10.5	4.5	6.5	14.0	9.5	11.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	14.0	13.0	13.5	16.5	16.0	16.5	20.0	19.0	19.5	20.5	19.5	20.0
2	14.5	13.5	14.0	17.0	15.5	16.0	20.0	19.0	19.5	20.5	19.5	20.0
3	15.5	14.0	14.5	17.0	16.0	16.5	19.5	19.0	19.5	20.0	19.5	19.5
4	15.5	14.5	15.0	18.0	16.5	17.0	19.5	18.5	19.0	20.5	19.5	20.0
5	15.0	14.5	14.5	18.0	17.0	17.5	19.5	19.0	19.5	20.5	19.5	20.0
6	14.5	14.0	14.0	18.5	17.5	18.0	20.0	19.0	19.5	20.5	20.0	20.0
7	14.5	13.5	14.0	18.5	17.5	18.0	20.0	19.5	19.5	20.5	19.5	20.0
8	14.5	13.5	14.0	18.0	17.0	17.5	20.0	19.0	19.5	20.5	19.5	20.0
9	15.0	14.0	14.5	18.0	17.0	17.5	20.0	19.0	19.5	19.5	19.0	19.0
10	16.0	15.0	15.5	17.5	17.0	17.5	20.0	19.0	19.5	19.5	19.0	19.0
11	16.5	15.5	16.0	17.5	17.0	17.0	20.5	19.5	20.0	19.5	18.5	19.0
12	16.0	15.0	15.5	17.5	17.0	17.5	20.5	19.5	20.0	19.5	19.0	19.5
13	16.0	15.0	15.5	18.0	16.5	17.5	20.5	19.5	20.0	20.0	19.0	19.5
14	15.5	15.0	15.5	18.0	17.0	17.5	20.0	19.5	19.5	20.0	19.0	19.5
15	15.5	14.5	15.0	18.5	17.5	18.0	20.5	19.0	19.5	20.0	19.5	20.0
16	15.5	14.5	15.0	19.0	18.0	18.5	20.5	19.5	20.0	20.5	19.5	20.0
17	15.0	14.5	14.5	19.5	18.0	18.5	21.0	20.0	20.5	20.0	19.5	20.0
18	16.0	14.5	15.0	19.5	18.0	19.0	21.0	20.0	20.5	20.0	19.0	19.5
19	15.5	14.5	15.0	20.0	18.0	19.0	20.5	20.0	20.0	20.0	19.5	19.5
20	16.0	15.0	15.5	20.0	18.5	19.0	21.0	20.0	20.5	20.0	19.5	20.0
21	16.0	15.0	15.5	20.0	18.5	19.0	20.5	19.5	20.0	20.5	19.5	20.0
22	16.5	15.0	15.5	19.5	18.5	19.0	21.0	19.5	20.0	20.0	19.0	19.5
23	16.5	15.0	15.0	19.5	18.5	19.0	20.5	20.0	20.5	19.5	19.0	19.5
24	17.0	15.5	16.5	20.0	18.5	19.0	20.5	19.5	20.0	20.0	19.0	19.5
25	17.0	16.0	16.5	20.0	18.5	19.5	20.0	19.5	20.0	20.0	19.0	19.5
26	17.0	16.0	16.5	20.0	19.0	19.5	21.0	20.0	20.5	20.0	19.0	19.5
27	17.5	16.0	16.5	20.0	19.0	19.5	20.5	20.0	20.5	19.5	19.0	19.5
28	17.5	16.0	16.5	20.0	19.0	19.5	20.5	19.5	20.0	19.5	19.0	19.0
29	17.5	16.5	17.0	20.0	19.0	19.5	20.5	19.5	20.0	19.0	18.5	18.5
30	17.0	16.5	16.5	20.0	19.0	19.5	20.5	20.0	20.5	19.0	18.5	19.0
31	---	---	---	20.0	18.5	19.5	20.5	19.5	20.0	---	---	---
MONTH	17.5	13.0	15.5	20.0	15.5	18.5	21.0	18.5	20.0	20.5	18.5	19.5

YEAR	21.0	.5	11.0									
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LOCATION.--Lat 46°43'47", long 119°02'56", in NE&SE4 sec.4, T.14 N., R.30 E., Franklin County, Hydrologic Unit 17020016, at State Highway 17, 400 ft (122 m) upstream from entrance to the Potholes Canal, 1.3 mi (2.1 km) upstream from entrance to Scootenay Reservoir, and 9.2 mi (14.6 km) southeast of Othello.

PERIOD OF RECORD.--March 1978 to October 1979 (discontinued).

REMARKS.--Water-discharge records excellent. To obtain comparable records of water flow and water-quality data, all daily values have been computed with the day beginning at 0900 hours. Flow from irrigation waste and ground-water returns. Discharge controlled to some extent by upstream catchment basins. Flow used for downstream irrigation. Water quality data, including daily records for water temperature, suspended sediment, total nitrogen, total nitrate-plus-nitrite, total ortho-phosphorus, and total phosphorus for the period March 1978 through October 1979, in separate data report, "QUALITY OF IRRIGATION WATER DATA FROM SELECTED SITES IN SOUTHEASTERN WASHINGTON" (in preparation).

COOPERATION.--Water-quality observer furnished by South Columbia Irrigation District.

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 343 ft³/s (9.71 m³/s) Feb. 10, 1979, gage height, 6.62 ft (2.018 m); minimum daily, 16 ft³/s (0.45 m³/s) Jan. 6, 7, Feb. 2, 1979.

EXTREMES FOR CURRENT YEAR. --Maximum discharge during period October 1976 to October 1979, 343 ft³/s (9.71 m³/s) Feb. 10, gage height, 6.62 ft (2.018 m); minimum daily discharge during period October 1976 to October 1979, 1.0 ft³/s (0.45 m³/s) Jan. 6, 7, Feb. 2.

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123	46	35	17	17	25	42	94	186	193	205	163
2	120	46	32	17	16	24	44	97	190	211	213	165
3	114	39	34	17	17	25	46	94	190	195	207	171
4	112	37	36	17	18	26	50	101	187	195	211	194
5	116	35	33	17	19	27	52	112	186	188	200	171
6	119	34	31	16	21	28	49	109	202	170	200	137
7	125	34	29	16	31	27	49	111	208	188	201	136
8	126	33	29	17	38	27	46	109	215	200	206	131
9	126	32	29	17	103	27	51	121	226	210	204	130
10	121	30	30	17	257	27	55	121	229	209	201	133
11	126	30	29	17	82	27	59	125	216	211	190	136
12	125	29	27	17	70	26	67	133	209	198	191	139
13	114	27	27	18	53	25	76	135	218	205	194	135
14	118	27	28	18	30	25	79	139	223	225	220	130
15	123	28	27	18	25	46	80	129	221	213	228	135
16	122	29	28	18	25	25	81	120	213	208	210	133
17	117	29	27	18	24	24	83	129	224	204	197	135
18	121	27	26	20	25	23	79	131	226	212	187	136
19	124	23	24	19	24	22	73	136	213	218	184	130
20	111	29	24	19	24	22	77	148	207	223	184	132
21	106	31	25	20	24	22	71	154	206	225	175	133
22	110	30	26	19	24	21	69	148	203	231	167	132
23	106	29	26	20	23	21	73	150	197	238	163	136
24	99	29	26	20	24	21	73	155	205	234	166	136
25	96	29	25	19	27	21	69	157	205	233	166	131
26	78	29	25	19	27	21	68	162	196	229	158	126
27	64	29	20	19	26	22	68	171	190	225	161	128
28	58	30	18	18	25	20	80	186	173	223	159	127
29	43	30	18	17	---	23	72	187	168	226	156	128
30	37	36	18	17	---	23	86	184	173	225	154	127
31	37	---	17	17	---	28	---	183	---	216	157	---
TOTAL	3239	946	829	555	1199	771	1955	4231	6105	6591	5831	4102
MEAN	104	31.9	26.7	17.9	42.0	24.9	65.2	136	204	213	188	137
MAX	128	46	38	20	257	38	86	187	229	238	228	171
MIN	37	23	17	16	16	20	42	94	168	179	154	126
AC-FT	6429	1880	1640	1100	2380	1530	3880	8390	12110	13678	11570	8140
STR YR 1979	TOTAL	36354	MEAN 99.6	MAX 257	MIN 16	AC-FT	72118					

DISCHARGE IN CUBIC FEET PER SECOND, OCTOBER 1979

[illegible]

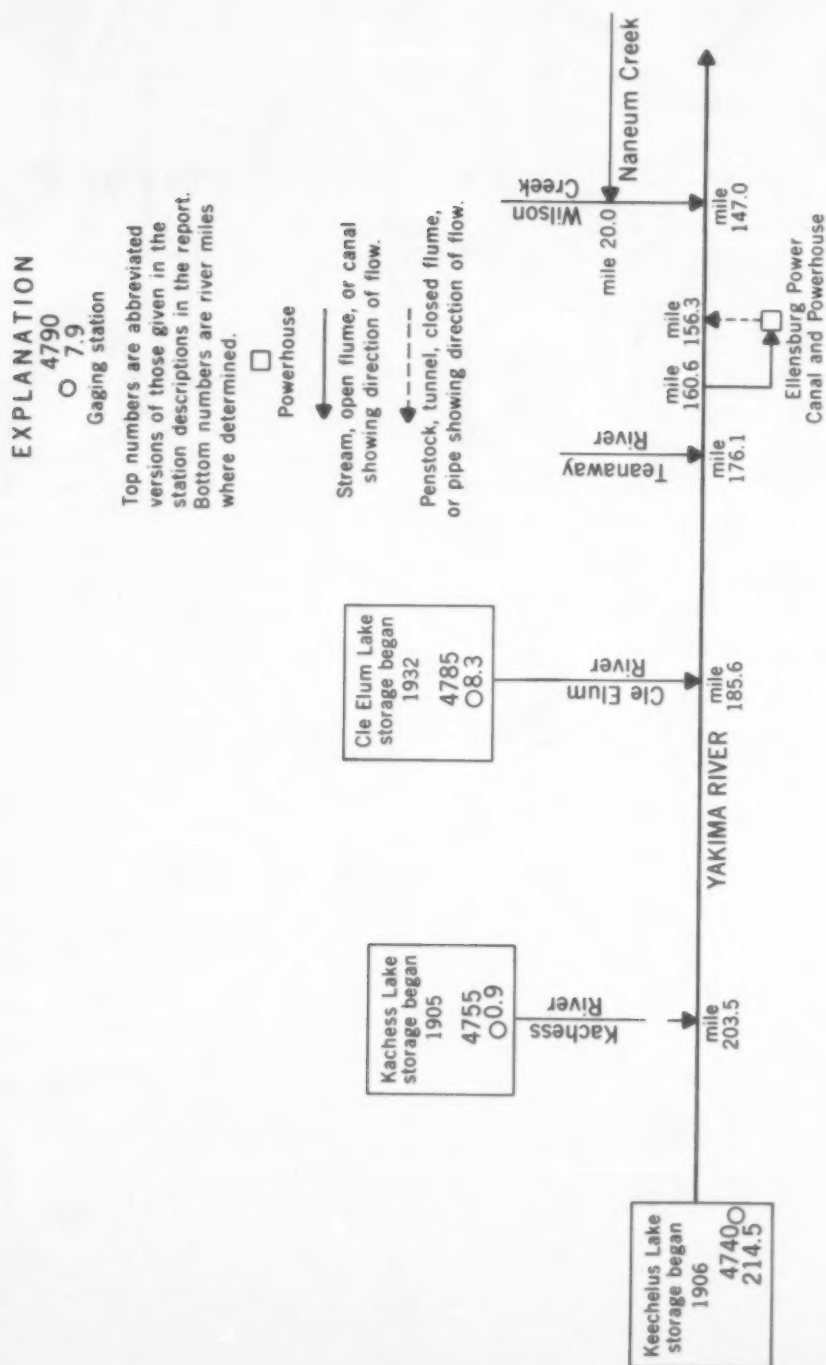


Figure 14. Gaging stations in Yakima River basin between Keechelus Lake and Naneum Creek.

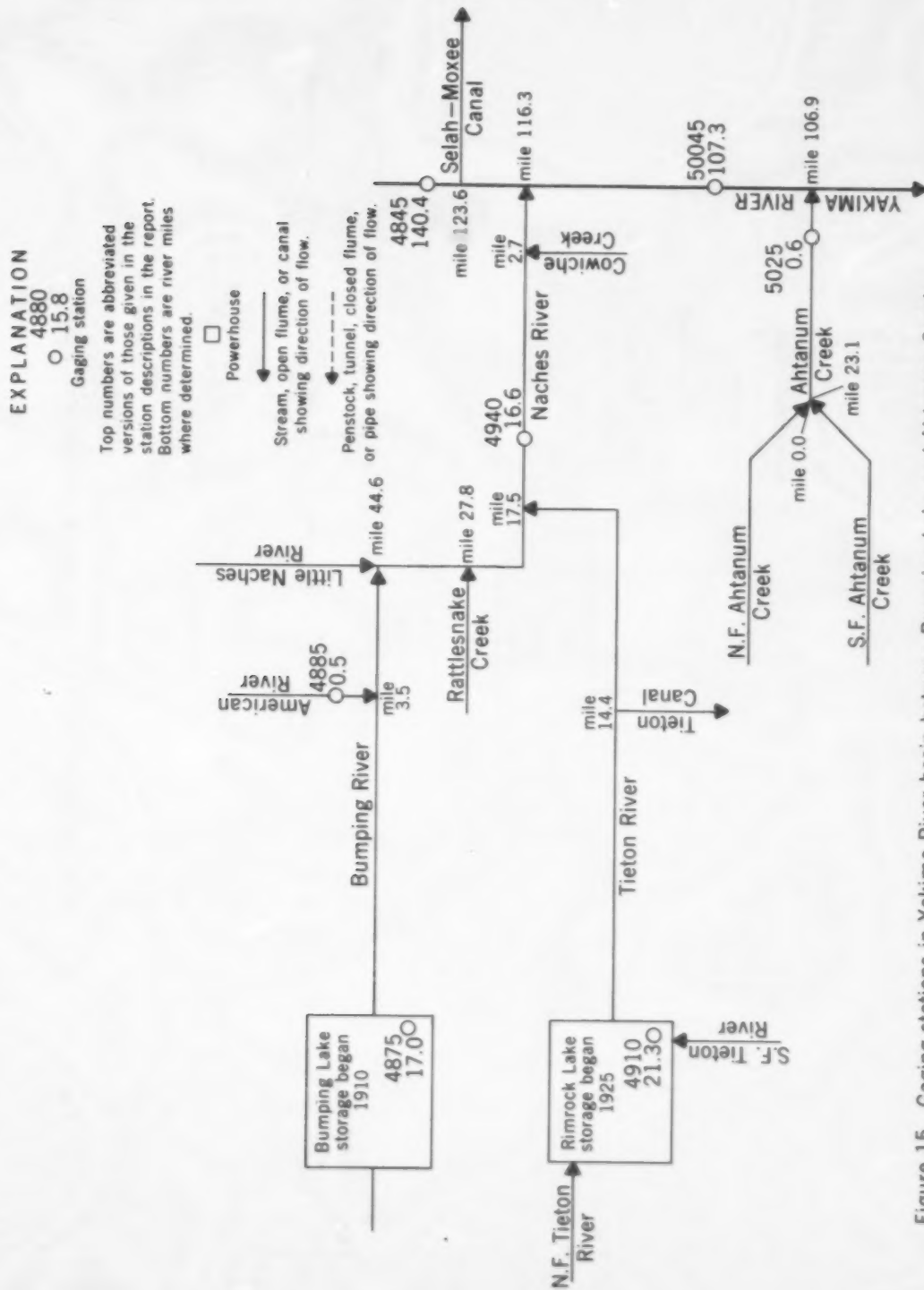


Figure 15. Gaging stations in Yakima River basin between Bumping Lake and Ahtanum Creek.

12484500 YAKIMA RIVER AT UMTANUM, WA

LOCATION.--Lat 46°51'46", long 120°28'44", in SW¼NW¼ sec.20, T.16 N., R.19 E., Kittitas County, Hydrologic Unit 17030001, on right bank at Umatan railway siding, 0.5 mi (0.8 km) upstream from Umatan Creek, 4.2 mi (6.8 km) upstream from McPherson Canyon, 10 mi (16 km) south of Ellensburg, and at mile 140.4 (225.9 km).

DRAINAGE AREA.--1,594 mi² (4,128 km²).

PERIOD OF RECORD.--August 1906 to September 1979 (discontinued).

REVISED RECORDS.--WSP 412: 1914. WSP 1286: 1910. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,300.00 ft (396.240 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 28, 1911, nonrecording gage at approximately same site at various datums. Sept. 28, 1911, to Nov. 23, 1936, water-stage recorder at site about 300 ft (91 m) upstream at datum 26.70 ft (8.138 m) higher.

REMARKS.--Records good except period Dec. 27 to Feb. 8, which are poor. Flow partly regulated by Keeschelus, Eachess, and Cle Elum Lakes. Diversions above station for irrigation of about 105,000 acres (420 km²).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,000 ft³/s (1,160 m³/s) Nov. 15 or 16, 1906, gage height, 41.1 ft (12.53 m), from floodmarks, present datum; minimum recorded, 138 ft³/s (3.91 m³/s) Oct. 3, 1915, gage height, 2.96 ft (0.872 m), datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,910 ft³/s (111 m³/s) July 10, gage height, 32.64 ft (9.949 m); minimum daily, 180 ft³/s (5.10 m³/s) Jan. 1, result of freeze up.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1780	598	1030	180	280	677	1260	3050	2080	2990	2370	1110
2	1738	554	991	208	278	623	1188	2780	2240	3080	2270	1150
3	1670	518	929	220	278	609	1140	2680	2200	3020	2230	1200
4	1590	509	1050	238	290	578	1180	2500	2320	3090	2250	1360
5	1510	942	1260	250	340	601	1160	2610	2250	3190	2230	1420
6	1460	970	1130	240	500	1220	1400	2640	2180	3210	2130	1260
7	1400	728	1020	235	900	2340	1660	2570	2120	3600	2010	1230
8	1500	593	983	230	1400	2560	1580	2190	2050	3720	1920	1220
9	1500	565	990	270	1250	2090	1540	1770	2020	3710	1800	1220
10	1510	548	959	300	873	1790	1470	1660	2060	3840	1680	1230
11	1738	578	939	330	845	1600	1420	1730	2030	3790	1530	1190
12	1450	616	922	300	864	1580	1380	1890	1950	3730	1410	1150
13	1400	610	826	400	2420	1640	1360	2100	1910	3690	1300	1090
14	1360	595	863	440	1730	1620	1410	2170	2020	3810	1280	1040
15	1270	581	947	460	989	1630	1410	2120	2050	3710	1250	1000
16	1200	591	898	460	829	1750	1320	2210	2130	3670	1200	969
17	1130	616	855	450	726	1720	1190	2190	2230	3640	1200	932
18	1140	645	835	430	743	1630	1230	2140	2180	3620	1220	892
19	1140	749	839	420	840	1570	1320	2120	2090	3750	1250	884
20	1080	738	622	410	689	1550	1240	1950	2020	3670	1300	1330
21	997	727	569	430	633	1600	1270	1870	2110	3370	1310	1420
22	940	723	559	410	513	1630	1330	1890	2480	3280	1350	1150
23	895	711	397	390	681	1680	1410	2000	2690	3230	1300	870
24	852	706	631	380	1870	1470	1470	2100	2680	3280	1250	833
25	833	780	719	370	687	2130	1520	1980	2850	3170	1190	829
26	712	693	678	360	1070	2080	1748	1920	2760	3960	1200	813
27	618	683	620	340	1150	1920	2089	1950	2680	3050	1230	763
28	653	733	580	340	765	1730	2500	1850	2810	3020	1170	752
29	808	832	350	310	---	1560	2980	1650	2770	2740	1120	723
30	793	651	250	300	---	1440	3400	1570	2860	2580	1100	700
31	668	---	200	290	---	1350	---	1750	---	2470	1110	---
TOTAL	37311	29279	24951	10435	23015	48359	46470	65520	69900	103780	47160	31756
MEAN	1204	676	792	337	822	1540	1549	2114	2297	3348	1521	1059
MAX	1780	970	1260	440	2420	2560	3408	3050	2860	3840	2370	1420
MIN	618	510	200	180	270	578	1188	1570	1910	2470	1100	700
AC-FY	74018	48228	48700	20700	45650	95920	92178	138008	136780	205800	93540	62990
CLN FY 1978 TOTAL		905083		2480		6950		1795000				
WTR FY 1979 TOTAL		827532		1445		3840		1046000				

YAKIMA RIVER BASIN

12488500 AMERICAN RIVER NEAR NILE, WA

LOCATION.--Lat 46°58'40", long 121°10'03", in SE¼NW¼ sec.12, T.17 N., R.13 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, on right bank 300 ft (91 m) upstream from Bumping Lake Road bridge, 4.9 mi (7.9 km) downstream from Hall Creek, 16.0 mi (25.7 km) northwest of Nile, and at mile 0.5 (0.8 km).

DRAINAGE AREA.--78.9 mi² (204.4 km²).

PERIOD OF RECORD.--April 1909 to March 1912, July to September 1913, June to September 1914, June to September 1915, October 1939 to current year. Monthly discharge only for some periods, published in WSP 1316. Chemical analyses October 1962 to September 1964, water temperatures October 1968 to May 1971.

REVISED RECORDS.--WSP 982: 1940-42. WSP 1216: Drainage area. WSP 1286: 1911.

GAGE.--Water-stage recorder. Datum of gage is 2,700.0 ft (822.96 m) Washington State Highway Department datum. Prior to Sept. 12, 1915, nonrecording gage at site 300 ft (91 m) downstream at different datum. Oct. 12 to Dec. 7, 1939, nonrecording gage at present site and datum.

REMARKS.--Records good except for period Nov. 11 to Mar. 7, which are poor. No regulation or diversion.

AVERAGE DISCHARGE.--42 years (water years, 1910-11, 1940-79), 244 ft³/s (6.910 m³/s) 42.00 in/yr (1,067 mm/yr) 176,800 acre-ft/yr (218 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,340 ft³/s (94.6 m³/s) Dec. 4, 1975, gage height, 77.37 ft (23.582 m); minimum, 20 ft³/s (0.57 m³/s) Nov. 22, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 850 ft³/s (24.1 m³/s) May 23, gage height, 74.69 ft (22.766 m); minimum daily, 26 ft³/s (0.74 m³/s) Feb. 1-3, result of freeze up.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	51	65	28	26	140	128	569	379	228	65	60
2	86	49	68	28	26	135	123	589	463	196	63	77
3	80	52	70	30	26	130	120	623	558	174	62	123
4	79	119	67	30	27	130	121	686	681	184	61	100
5	76	104	64	29	35	140	127	735	588	189	59	85
6	74	87	60	28	55	180	139	680	533	168	58	78
7	72	80	60	27	78	190	138	578	423	164	57	72
8	70	84	58	28	92	191	138	501	356	158	55	68
9	68	85	60	28	110	178	139	445	350	151	54	66
10	67	76	62	29	120	161	135	403	387	163	53	68
11	66	68	62	30	115	155	132	378	440	153	51	66
12	65	64	58	32	115	158	131	386	441	142	51	63
13	64	62	55	33	130	155	136	427	405	133	50	60
14	63	58	55	34	150	153	137	502	339	125	52	58
15	62	55	60	34	130	157	130	664	292	120	52	55
16	61	60	51	34	125	163	129	688	277	116	59	54
17	59	64	52	34	130	156	129	662	266	111	62	52
18	58	63	52	33	140	151	124	635	242	107	58	51
19	58	62	48	34	150	145	120	613	248	102	64	49
20	57	60	52	36	135	142	117	588	233	97	68	48
21	57	58	55	34	130	144	110	635	234	92	65	47
22	56	56	60	33	125	144	121	710	230	88	68	46
23	56	55	60	33	120	148	126	827	233	84	61	45
24	58	53	57	33	115	159	135	802	238	81	57	45
25	56	52	54	33	115	166	149	749	248	78	55	45
26	54	51	50	32	140	164	174	735	260	76	58	44
27	53	52	50	32	160	159	222	784	249	73	70	44
28	53	60	47	31	150	153	308	562	241	71	62	44
29	55	64	41	30	---	146	425	454	246	69	57	42
30	53	65	34	29	---	140	528	382	225	67	56	40
31	52	---	30	27	---	133	---	357	---	66	63	---
TOTAL	1981	1969	1717	966	2960	4766	4899	18211	10245	3786	1826	1795
MEAN	63.9	65.6	55.4	31.2	106	154	163	587	342	122	58.9	59.8
MAX	93	119	70	36	160	191	528	827	601	228	70	123
MIN	52	49	30	27	26	130	117	357	225	66	50	40
CFSM	.81	.63	.70	.40	1.34	1.95	2.07	7.44	4.34	1.55	.75	.76
IN.	.93	.93	.81	.46	1.40	2.25	2.31	8.59	4.43	1.79	.86	.85
AC-FT	3930	3910	3410	1920	5870	9450	9720	36120	20320	7510	3620	3560

CAL YR 1978 TOTAL 74253 MEAN 203 MAX 1070 MIN 30 CFSM 2.57 IN 35.01 AC-FT 147300
WTR YR 1979 TOTAL 45121 MEAN 151 MAX 827 MIN 26 CFSM 1.91 IN 25.99 AC-FT 199300

RESERVOIRS IN YAKIMA RIVER BASIN, WA

- 12474000 KEECHELUS LAKE.--Lat 47°19'21", long 121°20'18", in SE¼NE¼ sec.12, T.21 N., R.11 E., Kittitas County, Hydrologic Unit 17030001, Wenatchee National Forest, at headgate tower of outlet at dam on Yakima River 3.0 mi (4.8 km) northwest of Martin, 10 mi (16 km) northwest of Easton, and at mile 214.5 (345.1 km). DRAINAGE AREA, 54.7 mi² (141.7 km²). PERIOD OF RECORD, January 1906 to current year. GAGE, water-stage recorder and low water staff gages. Datum of gage is 0.00 ft (0.000 m) Bureau of Reclamation datum. Prior to Mar. 24, 1967, nonrecording gage at same site and datum.
- REMARKS.--Reservoir is formed on natural lake by earth-filled dam completed in 1917; storage began behind crib dam Jan. 12, 1906, behind present dam Aug. 19, 1914. Initial filling of present reservoir June 15, 1920. Usable capacity, 157,800 acre-ft (195 hm³) between elevation, 2,425.00 ft (739.140 m), invert of gate sill, and 2,517.00 ft (767.182 m), spillway crest. Spillway raised 2 ft (0.6 m) Sept. 12, 1952. Figures given herein represent usable contents. Water is used for irrigation.
- COOPERATION.--Records furnished by Bureau of Reclamation.
- EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 160,940 acre-ft (198 hm³) June 5, 1969, elevation, 2,518.23 ft (767.557 m); minimum observed, 448 acre-ft (0.552 hm³) Sept. 6, 12, 13, 1906 (original crib dam); minimum elevation observed, 2,428.30 ft (740.146 m) Sept. 20, 1926.
- EXTREMES FOR CURRENT YEAR.--Maximum contents, 158,440 acre-ft (195 hm³) May 30, elevation, 2,517.26 ft (767.261 m); minimum, 7,760 acre-ft (9.57 hm³) Sept. 30, elevation, 2,431.19 ft (741.027 m).
- 12475500 KACHESS LAKE.--Lat 47°15'53", long 121°12'16", in SW¼SW¼ sec.34, T.21 N., R.13 E., Kittitas County, Hydrologic Unit 17030001, Wenatchee National Forest, on outlet gate tower at dam on Kachess River, 2.4 mi (3.9 km) northwest of Easton. DRAINAGE AREA, 63.6 mi² (164.7 km²). PERIOD OF RECORD, September 1905 to current year. GAGE, water-stage recorder. Datum of gage is 0.00 ft (0.000 m) Bureau of Reclamation datum. Prior to Oct. 28, 1966, nonrecording gage at same site and datum.
- REMARKS.--Reservoir is formed on natural lake by earth-filled dam completed in 1912. Original crib dam, capacity of 21,000 acre-ft (25.9 hm³), used Sept. 20, 1905, to June 30, 1911. Storage behind present dam began June 30, 1911. Usable capacity, 239,000 acre-ft (298 hm³) between elevation, 2,192.75 ft (668.350 m), invert of gate sill, and 2,264.00 ft (689.458 m), top of spillway gate. Figures given herein represent usable contents. Water is used for irrigation.
- COOPERATION.--Records furnished by Bureau of Reclamation.
- EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 244,800 acre-ft (302 hm³) May 9, 1957, elevation, 2,263.29 ft (689.851 m); minimum observed, 525 acre-ft (0.647 hm³) Sept. 14, 15, 1910 (original crib dam); minimum elevation observed, 2,197.73 ft (669.868 m) Sept. 25, 27, 1915.
- EXTREMES FOR CURRENT YEAR.--Maximum contents, 243,070 acre-ft (300 hm³) May 16, elevation, 2,262.90 ft (689.732 m); minimum, 28,890 acre-ft (35.6 hm³) Sept. 30, elevation, 2,203.18 ft (671.529 m).
- 12478500 CLE ELUM LAKE.--Lat 47°14'44", long 121°04'24", in NE¼NE¼ sec.10, T.20 N., R.14 E., Kittitas County, Hydrologic Unit 17030001, at dam on Cle Elum River at outlet of Cle Elum Lake, 4.0 mi (6.4 km) northwest of Roslyn, and at mile 8.3 (13.4 km). DRAINAGE AREA, 203 mi² (526 km²). PERIOD OF RECORD, May 1906 to current year. GAGE, water-stage recorder. Datum of gage is Bureau of Reclamation datum. Prior to Mar. 6, 1968, nonrecording gage at same site and datum.
- REMARKS.--Reservoir is formed on natural lake by earth-filled dam completed in 1933; storage began behind present dam Feb. 26, 1932. Usable capacity, 436,900 acre-ft (539 hm³) between elevation, 2,110.00 ft (643.128 m), invert of gate sill, and 2,240.00 ft (682.752 m), top of spillway gate. Figures given herein represent usable contents. Water is used for irrigation.
- COOPERATION.--Records furnished by Bureau of Reclamation.
- EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 448,520 acre-ft (551 hm³) May 8, 9, 1957, elevation, 2,241.98 ft (683.356 m); minimum observed, 2,390 acre-ft (2.93 hm³) Aug. 31, 1906; minimum elevation observed, 2,114.35 ft (644.454 m) Oct. 14, 1932. Storage was uncontrolled Oct. 3, 1931, to Feb. 26, 1932.
- EXTREMES FOR CURRENT YEAR.--Maximum contents, 402,710 acre-ft (497 hm³) June 21, 22, 23, elevation, 2,232.76 ft (680.545 m); minimum observed, 10,770 acre-ft (13.3 hm³) Oct. 25, elevation, 2,115.40 ft (644.774 m).
- 12487500 BUMPING LAKE.--Lat 46°52'25", long 121°17'57", in SW¼ sec.14 (unsurveyed), T.16 N., R.12 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, at outlet of dam on Bumping River, 2.2 mi (3.5 km) southwest of Goose Prairie, 10 mi (16 km) southwest of town of American River, 19 mi (31 km) west of Nile, and at mile 17.0 (27.4 km). DRAINAGE AREA, 69.3 mi² (179.5 km²). PERIOD OF RECORD, June to July 1906, April 1909 to current year. GAGE, water-stage recorder. Datum of gage is Bureau of Reclamation datum. Prior to Nov. 23, 1966, nonrecording gage at same site and datum.
- REMARKS.--Reservoir is formed on natural lake by earth-fill dam completed in 1910; storage began Nov. 3, 1910. Usable capacity, 33,700 acre-ft (41.6 hm³) between elevation 3,389.00 ft (1,032.967 m), invert of gate sill and 3,426.00 ft (1,044.245 m), spillway crest. Figures given herein represent usable contents. Water is used for irrigation.
- COOPERATION.--Records furnished by Bureau of Reclamation.
- EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 39,840 acre-ft (49.1 hm³) June 21, 22, 1925, elevation, 3,430.55 ft (1,045.632 m); minimum observed, 1,130 acre-ft (1.39 hm³) Feb. 5, 6, 7, 8, 9, 1949, elevation, 3,390.80 ft (1,033.516 m).
- EXTREMES FOR CURRENT YEAR.--Maximum contents, 36,090 acre-ft (44.5 hm³) May 24, elevation, 3,427.80 ft (1,044.793 m); minimum, 3,450 acre-ft (4.25 hm³) Sept. 30, elevation, 3,394.39 ft (1,034.610 m).
- 12491000 RIMROCK LAKE.--Lat 46°39'23", long 121°07'43", in NE¼SW¼ sec.31, T.14 N., R.14 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, on upstream spillway pier at Tieton dam on Tieton River at Rimrock, 0.6 mi (1.0 km) upstream from Wildcat Creek, 7.1 mi (11.4 km) upstream from headworks on Tieton Canal, 21 mi (34 km) west of Naches and at mile 21.3 (34.3 km). DRAINAGE AREA, 187 mi² (484 km²). PERIOD OF RECORD, April 1925 to current year. Prior to October 1959, published as Tieton Reservoir. GAGE, water-stage recorder and low water staff gages. Datum of gage is Bureau of Reclamation datum. Prior to Mar. 14, 1967, nonrecording gage at same site and datum.
- REMARKS.--Reservoir is formed by earth-fill dam completed in 1925; storage began Apr. 27, 1925. Usable capacity, 198,000 acre-ft (244 hm³) between elevation 2,766.00 ft (843.077 m), invert of tunnel entrance, and 2,926.00 ft (891.845 m), crest of spillway gates. Figures given herein represent usable contents. Water is used for irrigation.
- COOPERATION.--Records furnished by Bureau of Reclamation.
- EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 201,630 acre-ft (249 hm³) June 18, 1974, elevation, 2,927.43 ft (892.281 m); minimum observed, 89 acre-ft (0.110 hm³) Oct. 12, 1926, elevation, 2,766.77 ft (843.311 m).
- EXTREMES FOR CURRENT YEAR.--Maximum contents, 172,310 acre-ft (212 hm³) May 29, elevation, 2,915.35 ft (888.599 m); minimum, 166 acre-ft (0.205 hm³) Sept. 28, elevation, 2,767.36 ft (843.491 m).

YAKIMA RIVER BASIN

RESERVOIRS IN YAKIMA RIVER BASIN, WA--Continued

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Elevation (feet)	Contents (acre- feet)	Change in contents (acre-feet)	Elevation (feet)	Contents (acre- feet)	Change in contents (acre-feet)
12474000 KEECHULUS LAKE				12475500 KACHESS LAKE		
Sept. 30.....	2,466.85	55,950	---	2,246.71	172,620	---
Oct. 31.....	2,464.45	52,580	-3,550	2,241.87	153,060	-19,560
Nov. 30.....	2,467.70	57,210	+4,830	2,244.15	162,160	+9,100
Dec. 31.....	2,470.85	60,820	+3,610	2,246.76	172,820	+10,660
CAL YR 1978.....	---	---	-70,260	---	---	-5,980
Jan. 31.....	2,473.44	66,250	+5,410	2,248.10	178,380	+5,560
Feb. 28.....	2,480.61	78,420	+12,190	2,250.37	187,950	+9,550
Mar. 31.....	2,493.02	102,200	+23,780	2,255.05	208,070	+20,140
Apr. 30.....	2,500.63	118,490	+16,290	2,259.93	229,650	+21,580
May 31.....	2,516.64	156,850	+38,360	2,261.24	235,540	+5,890
June 30.....	2,487.01	90,240	-66,610	2,256.60	214,860	-20,680
July 31.....	2,444.14	24,470	-65,770	2,235.83	129,860	-85,000
Aug. 31.....	2,431.50	8,160	-16,310	2,214.61	61,090	-68,770
Sept. 30.....	2,431.19	7,700	-400	2,203.18	28,890	-32,200
WTR YR 1979.....	---	---	-48,170	---	---	-143,730
12478500 CLE ELUM LAKE				12487500 BUMPING LAKE		
Sept. 30.....	2,122.31	24,800	---	3,413.15	18,720	---
Oct. 31.....	2,115.83	11,640	-13,160	3,400.22	7,470	-11,250
Nov. 30.....	2,128.09	36,890	+25,250	3,395.77	4,360	-3,110
Dec. 31.....	2,136.29	55,010	+18,120	3,395.06	3,890	-470
CAL YR 1978.....	---	---	-175,170	---	---	-28,760
Jan. 31.....	2,140.67	65,850	+10,840	3,394.90	3,780	-110
Feb. 28.....	2,146.16	80,320	+14,470	3,401.48	8,410	+4,630
Mar. 31.....	2,162.75	129,100	+48,780	3,405.31	11,440	+3,030
Apr. 30.....	2,179.43	184,990	+55,890	3,408.35	14,080	+2,640
May 31.....	2,218.72	339,770	+154,780	3,427.07	35,110	+21,030
June 30.....	2,231.62	397,420	+57,650	3,426.76	34,700	-410
July 31.....	2,223.72	361,080	-35,740	3,422.02	28,690	-6,010
Aug. 31.....	2,223.28	359,730	-1,950	3,396.80	5,060	-23,630
Sept. 30.....	2,223.22	359,460	-270	3,394.39	3,450	-1,610
WTR YR 1979.....	---	---	+334,660	---	---	-15,270
12491000 RIMROCK LAKE						
Sept. 30.....	2,900.87	140,690	---			
Oct. 31.....	2,900.09	139,080	-1,610			
Nov. 30.....	2,901.58	142,170	+3,090			
Dec. 31.....	2,900.61	140,150	-2,020			
CAL YR 1978.....	---	---	-26,590			
Jan. 31.....	2,899.96	138,810	-1,340			
Feb. 28.....	2,903.62	146,450	+7,640			
Mar. 31.....	2,907.33	154,390	+7,940			
Apr. 30.....	2,903.84	146,910	-7,480			
May 31.....	2,914.08	169,390	+22,480			
June 30.....	2,891.88	122,660	-46,730			
July 31.....	2,874.46	91,190	-31,470			
Aug. 31.....	2,810.93	16,220	-74,970			
Sept. 30.....	2,767.52	187	-16,030			
WTR YR 1979.....	---	---	-140,500			

YAKIMA RIVER BASIN

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12494000 NACHES RIVER BELOW TIETON RIVER, NEAR NACHES, WA

LOCATION ---Lat 46°44'48", long 120°46'05", in SW¼NE¼ sec.36, T.15 N., R.16 E., Yakima County, Hydrologic Unit 17050002, on left bank 0.4 mi (0.6 km) downstream from Wapatox power canal intake, 0.9 mi (1.4 km) downstream from Tieton River, 3.5 mi (5.6 km) northwest of Naches, and at mile 16.6 (26.7 km).

DRAINAGE AREA ---941 mi² (2,437 km²).

PERIOD OF RECORD ---August to October 1905, October 1908 to September 1979 (discontinued). Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS ---WSP 1216: Drainage area. WSP 1286: 1910(M), 1911, 1929-30(M), 1932-33(M), 1935(M). WSP 1396: 1954.

GAGE ---Water-stage recorder. Datum of gage is 1,549.67 ft (472.339 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 7, 1916, nonrecording gage and Dec. 7, 1916, to Sept. 9, 1936, water-stage recorder, at site 0.6 mi (1.0 km) upstream at different datums. Sept. 10 to Oct. 30, 1936, nonrecording gage at present site and datum.

REMARKS ---Records good except the period of ice effect, Dec. 27 to Feb. 7, which are poor. Flow regulated by Bumping Lake since November 1910 and Rimrock Lake since October 1924. Diversions by Selah Valley and Tieton Canals since 1909, Wapatox Canal since 1936. Small unmeasured diversions for irrigation of approximately 420 acres (1.7 km²) above station.

COOPERATION ---Gage-height record collected in cooperation with, and three discharge measurement furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD ---Maximum discharge, 32,200 ft³/s (912 m³/s) Dec. 22, 23, 1933, gage height, 14.33 ft (4.368 m), site and datum then in use; minimum, 1 ft³/s (0.03 m³/s) Nov. 7, 1942, and for many days during winter of 1943-44, result of regulation and diversion.

EXTREMES FOR CURRENT YEAR ---Maximum discharge, 3,880 ft³/s (110 m³/s) May 24, gage height, 14.31 ft (4.362 m); minimum, 37 ft³/s (1.05 m³/s) Feb. 23, 74.

DISCHARGE IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	656	146	172	75	160	137	516	2290	2730	1270	1400	543
2	578	141	145	80	150	95	460	2260	2440	922	1270	532
3	480	141	132	90	160	131	402	2330	2570	570	1340	442
4	472	261	281	95	190	151	346	2460	2680	716	1400	134
5	471	468	314	90	215	334	433	2580	2260	803	1380	101
6	486	521	231	85	230	686	548	2340	2220	632	1150	118
7	514	503	144	80	280	970	644	1970	2270	576	1120	232
8	515	590	202	90	290	1070	644	1660	2270	362	1130	262
9	493	633	290	110	240	1050	656	1540	2400	195	1290	286
10	467	606	241	140	236	946	604	1930	2490	192	1330	250
11	421	541	227	170	236	898	495	2260	2450	189	1410	262
12	206	466	205	180	232	938	451	2310	2390	154	1490	302
13	171	465	128	190	302	1020	538	2330	2360	151	1650	266
14	93	446	162	190	302	1070	674	2360	2340	182	1490	240
15	129	441	214	200	246	1110	656	2310	2310	157	1180	274
16	137	475	153	225	189	1160	710	2420	2360	143	1200	310
17	144	486	150	220	154	1100	962	2160	2190	129	1240	321
18	144	483	162	210	154	1070	1130	2170	1990	243	1130	348
19	141	473	148	200	143	1030	1230	2580	2150	294	1170	323
20	170	343	152	200	185	1010	1110	2460	2140	350	912	126
21	198	280	173	220	170	1020	1070	2640	2030	338	840	148
22	191	199	171	215	143	1040	1290	2970	1990	632	922	179
23	186	133	164	210	86	1060	1350	3480	1540	710	914	163
24	187	130	169	210	37	1140	1230	3630	1390	754	1020	153
25	187	126	158	205	61	1240	1330	3300	1380	882	1070	99
26	177	134	117	200	236	1070	1480	3210	1380	988	1140	59
27	171	135	110	200	266	826	1560	3020	1390	1080	1050	42
28	164	195	100	190	250	710	1490	2480	1440	1080	1050	43
29	164	210	90	185	---	638	1910	2120	1400	1180	1060	40
30	160	171	85	180	---	592	2300	2230	1350	1430	576	75
31	153	---	80	170	---	548	---	2600	---	1280	587	---
TOTAL	8826	10342	5270	5105	5543	25860	28219	76400	62350	18584	35911	6673
MEAN	285	345	170	165	198	834	941	2465	2078	599	1158	222
MAX	656	633	314	225	302	1240	2300	3630	2730	1430	1650	543
MIN	93	126	80	75	37	95	346	1540	1350	129	576	40
AC-FT	17510	20510	10450	10130	10990	51290	55970	151500	123700	36860	71230	13240
CAL YR 1978 TOTAL	388729			MEAN 1065	MAX 5560	MIN 80	AC-FT 771000					
WTR YR 1979 TOTAL	289083			MEAN 792	MAX 3630	MIN 37	AC-FT 573400					

YAKIMA RIVER BASIN

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 46°32'04", long 120°27'58", in NW¼NE¼ sec.17, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, on left bank 2,200 ft (670 m) upstream from Ahtanum Creek, 0.6 mi (1.3 km) upstream from Wapato Dam, 1.4 mi (2.3 km) southeast of Union Gap, and at about mile 107.3 (113.8 km).

DRAINAGE AREA.--3,479 mi² (9,011 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Apr. 4, 1967, at site 1,200 ft (370 m) downstream at same datum.

REMARKS.--Water-discharge records good except for period of ice effect Dec. 29 to Feb. 7, which are poor. Diversions above station for irrigation of about 212,000 acres (860 km²). Flow partly regulated by Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes. Records at this site plus those for Ahtanum Creek at Union Gap (station 12502500) are equivalent to discontinued station 12503000, Yakima River at Union Gap.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,300 ft³/s (1,000 m³/s) Dec. 3, 1977, elevation, 949.55 ft (289.423 m); minimum, daily, 300 ft³/s (8.50 m³/s) Jan. 1, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,910 ft³/s (196 m³/s) Feb. 14, elevation, 940.94 ft (286.799 m); maximum elevation, 942.40 ft (287.244 m) Jan. 9 (backwater from ice); minimum daily, 300 ft³/s (8.50 m³/s) Jan. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2370	1190	1670	300	470	960	1780	5100	4160	3330	2950	1860
2	2250	1170	1710	330	460	930	1640	4740	3870	3250	2850	1940
3	1910	1250	1610	360	470	945	1420	4480	3910	2530	2820	2010
4	1700	1260	1650	440	490	973	1320	4390	4290	2630	2940	1820
5	1700	1430	2140	470	550	925	1340	4720	3660	3010	2950	1710
6	1670	1840	2030	460	750	1240	1660	4680	3430	2830	2760	1520
7	1700	1630	1770	450	1100	3040	2190	4230	3490	3100	2510	1460
8	1800	1350	1680	440	1340	3970	2230	3550	3400	3170	2440	1550
9	1900	1330	1800	470	1250	3360	2160	2680	3420	2930	2490	1630
10	1860	1300	1760	500	1340	3010	1960	2780	3540	2950	2480	1600
11	2120	1240	1720	540	1200	2720	1770	3390	3650	3010	2500	1520
12	1730	1240	1680	560	1160	2690	1580	3670	3480	2900	2420	1520
13	1580	1210	1510	600	2300	2770	1520	3890	3250	2850	2550	1500
14	1530	1190	1380	660	3160	2850	1690	4170	3340	2910	2510	1500
15	1330	1150	1620	690	1670	2930	1780	3900	3400	2910	2270	1500
16	1270	1180	1600	680	1300	3080	1880	3990	3540	2810	2110	1520
17	1240	1220	1530	660	1110	3120	1890	3720	3680	2670	2180	1480
18	1170	1250	1490	640	1080	2980	1950	3400	3270	2680	2090	1510
19	1200	1350	1420	630	1150	2840	2220	4010	3310	2890	2250	1460
20	1390	1340	1330	610	1010	2550	2150	3790	3320	3000	2170	1480
21	1700	1360	1250	640	903	2380	1880	3720	3110	2650	1930	1580
22	1610	1360	1220	630	866	2380	2260	4040	3490	2720	2170	1420
23	1550	1360	1210	620	831	2440	2390	4640	3400	2990	2060	1170
24	1490	1320	1250	600	793	2640	2380	5150	3090	2970	2120	999
25	1490	1300	1320	590	800	3030	2360	4810	3180	3100	2110	891
26	1430	1270	1290	570	1150	3150	2610	4530	3120	3010	2170	866
27	1270	1270	1180	560	1600	2930	3090	4500	2980	3130	2190	833
28	1220	1290	1070	540	1120	2710	3300	3870	3110	3180	2020	841
29	1380	1500	800	520	---	2380	4260	3040	3110	3020	2040	839
30	1410	1540	550	500	---	2130	5270	2830	3160	3120	1960	809
31	1340	---	350	480	---	1980	---	3230	---	2910	1860	---
TOTAL	49390	39690	44570	16740	31403	76021	65930	123730	103210	91160	72870	42338
MEAN	1593	1323	1438	540	1122	2452	2198	3991	3440	2941	2351	1411
MAX	2370	1840	2140	690	3160	3970	5270	5190	4290	3330	2950	2010
MIN	1170	1150	350	300	460	925	1320	2680	2980	2530	1860	809
AC-FT	97970	78730	88400	33200	62290	150800	130800	245400	204700	180800	144500	83980

CAL YR 1978 TOTAL 1298770 MEAN 3558 MAX 11400 MIN 350 AC-FT 2576000
WTR YR 1979 TOTAL 757052 MEAN 2074 MAX 5270 MIN 300 AC-FT 1502000

YAKIMA RIVER BASIN

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12500450 YAKIMA RIVER ABOVE AMTANUM CREEK, AT UNION GAP, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD--Water years 1969, 1971, March 1975 to September 1976, April to September 1979.

WATER QUALITY DATA, APRIL TO SEPTEMBER 1979

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN- DIS- SOLVED (MG/L)	COLI- FORM- FECAL- 0.7 UM-WF (COLS./ 100 ML)	STREP- TOCOCCI FECAL- KF AGAR (COLS./ PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS- NONCAR- BONATE (MG/L AS CACO3)
APR • 1979											
26...	0930	2920	102	8.3	9.9	4.0	12.4	11	29	40	0
MAY											
16...	1100	3960	86	8.4	11.2	6.9	13.2	19	69	35	7
JUN											
06...	1330	3410	85	8.2	14.2	3.6	10.6	60	51	33	0
JUL											
12...	1115	2470	106	--	17.6	4.0	8.9	58	50	40	4
AUG											
08...	1300	2500	106	8.4	19.7	1.5	10.5	46	45	43	4
SEP											
04...	1200	1840	160	8.2	17.4	3.6	10.5	110	76	86	3

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM DIS- SOLVED (MG/L AS MG)	SODIUM DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM DIS- SOLVED (MG/L AS K)	ALKA- LITY (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE- DIS- SOLVED (MG/L AS CL)	FLUO- RIDE- DIS- SOLVED (MG/L AS F)	SILICA- DIS- SOLVED (MG/L AS SiO2)
APR • 1979										
26...	10	3.6	6.3	25	.4	1.1	41	8.1	3.1	.1
MAY										
16...	9.2	3.0	4.7	22	.3	.7	28	2.9	4.6	.1
JUN										
06...	8.8	2.7	4.7	23	.4	1.0	33	4.4	2.6	.1
JUL										
12...	4.5	3.9	5.7	23	.4	1.0	36	5.8	3.1	.1
AUG										
08...	11	3.7	6.0	31	.4	1.2	39	9.5	3.4	.1
SEP										
04...	16	6.3	9.1	23	.5	1.5	63	9.0	3.1	.1

DATE	SOLIDS- RESIDUE AT 100 DEG. C DIS- SOLVED (MG/L)	SOLIDS- SUM OF CONSTI- TUENTS- DIS- SOLVED (MG/L)	SOLIDS- DIS- SOLVED (TONS PER AC-FT)	SOLIDS- DIS- SOLVED (TONS PER DAY)	SOLIDS- RESIDUE AT 100 DEG. C, SUS- PENDEU (MG/L)	NITRO- GEN- NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN- AMMONIA TOTAL (MG/L AS N)	NITRO- GEN- ORGANIC TOTAL (MG/L AS N)	NITRO- GEN-AM- MONIA + ORG- ANIC TOTAL (MG/L AS N)	NITRO- GEN-AM- MONIA + ORG- ANIC TOTAL (MG/L AS N)
APR • 1979										
26...	77	74	.10	524	32	.05	.06	.29	.35	.18
MAY										
16...	66	55	.09	706	9	.07	.02	.14	.16	.12
JUN										
06...	57	56	.08	525	21	.11	.05	.44	.49	.08
JUL										
12...	60	64	.08	465	28	.17	.03	.07	.10	.03
AUG										
08...	72	74	.10	486	16	.06	.00	.16	.16	.00
SEP										
04...	97	102	.13	482	7	.28	.08	.35	.43	.12

DATE	NITRO- GEN- TOTAL (MG/L AS N)	NITRO- GEN- TOTAL (MG/L AS NO3)	PHOS- PHORUS- TOTAL (MG/L AS P)	PHOS- PHORUS- DIS- SOLVED (MG/L AS P)	CARBON- ORGANIC TOTAL (MG/L AS C)	CARBON- ORGANIC DIS- SOLVED (MG/L AS C)	CARBON- ORGANIC SUS- PENDED TOTAL (MG/L AS C)	SEDI- MENT- SUS- PENDED (MG/L)	SEDI- MENT- DIS- CHARGE- SUS- PENDED (T/DAY)	SED- SUSP. SIEVE DIAM. 2 FINE THAN .062 MM
APR • 1979										
26...	.40	1.8	.050	.030	--	15	.7	17	116	87
MAY										
16...	.23	1.0	.050	.050	4.9	--	--	23	246	80
JUN										
06...	.60	2.7	.050	.020	2.1	--	--	22	203	--
JUL										
12...	.27	1.2	.080	.100	--	--	--	36	279	88
AUG										
08...	.22	.97	.060	.080	2.9	--	--	16	108	87
SEP										
04...	.71	3.1	.100	.080	3.9	--	--	12	60	80

YAKIMA RIVER BASIN

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA--Continued

WATER QUALITY DATA

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDE RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDE RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
APR • 1979										
26...	0930	1	1	0	0	10	0	0	<1	10
JUL										
12...	1115	1	0	0	0	10	0	0	2	0

DATE	TIME	CHRO- MIUM, SUS- PENDE RECOV. (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDE RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDE RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDE RECOV- ERABLE (UG/L AS FE)
APR • 1979											
26...	10	0	0	0	<3	1	0	1	760	720	
JUL											
12...	0	0	2	0	<3	39	39	0	1100	970	

DATE	TIME	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDE RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDE RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDE RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)
APR • 1979											
26...	40	65	62	3	30	20	10	.1	.1	.0	
JUL											
12...	130	10	10	0	40	30	10	.1	.1	.0	

DATE	TIME	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, SUS- PENDE TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDE RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
APR • 1979										
26...		0	0	0	0	0	0	30	30	5
JUL										
12...		0	0	0	0	0	0	30	30	3

DATE	TIME	PERI- PHYTON BIOMASS ASM WEIGHT G/5Q M	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/5Q M	CHLOR-A PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2)	CHLOR-R PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2)	LENGTH OF EXPO- SURE (DAYS)
JUL • 1979						
12...	1115	13.2	14.3	25.6	6.09	36

YAKIMA RIVER BASIN

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12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE TIME	MAY 16.79 1100	JUN 6.79 1330	JUL 12.79 1115	AUG 8.79 1300	SEP 4.79 1200	
TOTAL CELLS/ML	620	1200	1300	670	3100	
DIVERSITY: DIVISION	0.3	0.7	1.2	1.3	1.2	
..CLASS	0.3	0.7	1.2	1.3	1.2	
..ORDER	0.8	1.0	1.3	1.6	1.5	
...FAMILY	2.7	1.1	2.0	2.4	2.0	
....GENUS	2.7	1.1	2.0	2.4	3.0	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
....CHARACIACEAE						
....SCHROEDERIA	--	--	--	29	4	--
...CHLOROCOCCACEAE						
....CHLOROCOCCUM	--	--	--	--	--	26
...OOCYSTACEAE						1
....ANKISTRODESUS	--	--	--	--	--	
....CHODATELLA	14	2	--	--	--	26
...SCENEDESMACEAE				14	2	--
...SCENEDESMUS	--	--	--	--	--	
...TETRASTRUM	--	--	52	4	14	2
...VOLVOCELES	--	--	--	--	--	51
...CHLAMYDOMONADACEAE						2
...CHLAMYDOMONAS	14	2	--	13	1	--
CHRYSOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
...COSCINODISCAEAE						
....CYCLOTELLA	29	5	65	5	14	2
...MELOSIRA	29	5	--	--	29	4
...SKELETONEMA	--	--	26	2	100	3
...PENNALES	--	--	--	--	--	0
...ACHNANTHACEAE						
....ACHNANTHES	43	7	--	--	--	--
...COCCONEIS	--	--	--	--	14	2
...RHODICOSPHEA	--	--	--	--	--	40
...CYMBELLACEAE	--	--	26	2	--	7
...CYMBELLA	29	5	13	1	14	2
...DIATOMACEAE						40
...DIATOMA	140	23	--	--	--	3
...FRAGILARIACEAE			26	2	--	--
...FRAGILARIA	--	--	--	--	--	--
...SYNEDRA	--	--	26	2	--	--
...GOMPHONEMACEAE						100
...GOMPHONEMA	58	9	--	--	--	3
...NAVICULACEAE			26	2	--	--
...NAVICULA	43	7	52	4	29	4
...NITZSCHIAEAE			180	14	--	17
...NITZSCHIA	220	35	78	7	230	34
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
....CHROOCOCCACEAE						
....ANACYSTIS	--	--	26	2	--	2
...HORMOGONALES						
...NOSTOCACEAE						
....ANABAEANA	--	--	--	--	--	1100
...OSCILLATORIACEAE						35
....LYNGBYA	--	--	--	--	--	--
...OSCILLATORIA	--	--	960	80	260	38
...SCHIZOTHRIX	--	--	--	780	59	--
...RIVULARIACEAE	--	--	--	--	--	510
...RAPHIDIOPSIS	--	--	--	--	29	4

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
 * - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

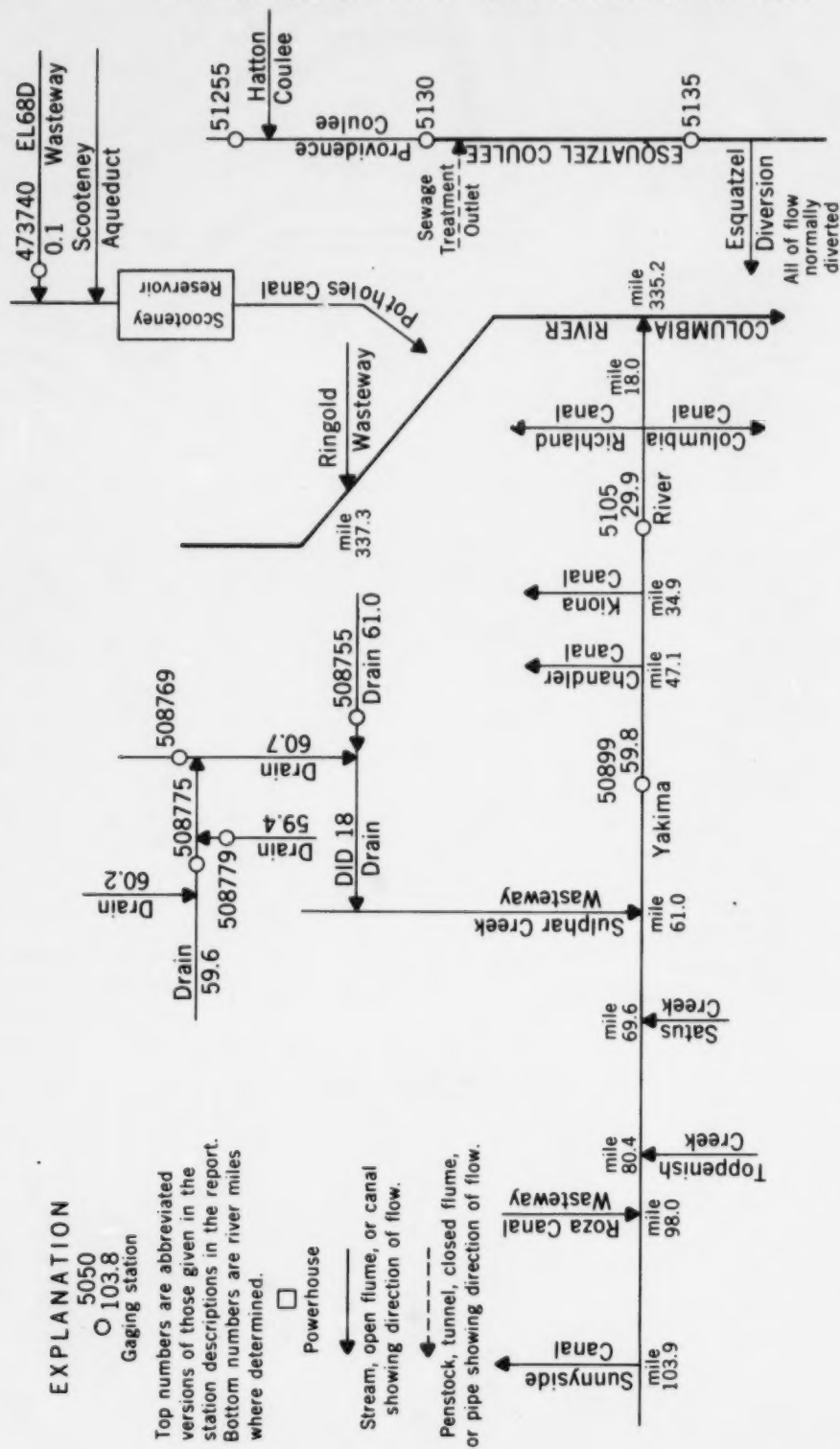


Figure 16. Gaging stations in Yakima River basin downstream from Sunnyside Canal and in Esquatzel Coulee.

YAKIMA RIVER BASIN

185

12502500 AHTANUM CREEK AT UNION GAP, WA

LOCATION.--Lat 46°32'08", long 120°28'20", in SE¼SW¼ sec. 8, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, on left upstream wingwall of Union Pacific Railway bridge at Union Gap, 1.0 mi (1.6 km) south of town of Union Gap, and at mile 0.6 (1.0 km).

DRAINAGE AREA.--173 mi² (448 km²).

PERIOD OF RECORD.--May to November 1904, August 1907 to July 1908, March to October 1910, April 1911 to September 1914, May 1951 to April 1953, August 1960 to current year. Published as "near Yakima" 1904, 1907-08, 1910-12. Records for water years 1913-14 are published in WSP 1286. Chemical data (irrigation seasons only) for 1975-76 water years.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 940 ft (287 m), from topographic map. Prior to Sept. 30, 1914, nonrecording gage at approximately same site at various datums. May 12, 1951 to Sept. 30, 1972, water-stage recorder at present site at datum 3.00 ft (0.914 m) higher.

REMARKS.--Records fair. Diversions and groundwater withdrawals for irrigation of about 9,000 acres (36 km²) above station. Return from trans-basin irrigation flows contribute to base flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,100 ft³/s (87.8 m³/s) Jan. 16, 1974, gage height, 10.36 ft (3.158 m); no flow many days during September and October 1904.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 217 ft³/s (6.15 m³/s) Feb. 7, gage height, 3.97 ft (1.210 m); minimum, 4.3 ft³/s (0.12 m³/s) July 18, 21, gage height, 2.19 ft (0.668 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	25	30	14	20	46	61	80	44	8.6	6.6	8.8
2	29	25	30	16	19	46	61	87	42	8.9	11	7.6
3	29	25	30	18	24	46	59	90	40	6.8	8.7	9.5
4	25	24	32	21	30	46	57	93	35	6.8	7.2	9.8
5	27	25	34	20	45	50	60	95	30	9.5	16	15
6	27	24	30	19	65	60	62	85	25	13	18	17
7	26	25	27	18	114	84	64	70	21	16	12	12
8	27	25	26	19	75	95	64	64	15	15	7.9	14
9	28	24	30	19	52	74	62	60	11	12	7.3	17
10	31	24	30	20	59	69	58	53	8.9	16	8.2	18
11	30	25	32	21	54	61	54	48	11	14	10	17
12	31	24	32	22	50	71	52	44	13	15	10	18
13	30	24	29	23	108	73	51	42	13	15	14	15
14	29	24	27	27	76	71	52	41	7.5	15	15	12
15	29	22	29	28	56	71	52	41	10	13	17	13
16	29	22	29	28	52	77	50	42	19	11	19	13
17	29	22	28	28	48	77	49	45	20	8.6	16	13
18	29	30	28	29	48	77	48	50	18	6.1	11	14
19	29	25	26	28	48	71	47	55	14	12	15	14
20	29	22	26	29	46	71	45	58	12	13	16	14
21	29	24	27	29	46	70	44	57	13	7.6	17	13
22	29	28	28	28	44	69	43	64	12	5.6	17	12
23	30	26	29	29	44	68	42	60	12	5.9	17	12
24	28	25	30	30	43	68	42	57	9.6	5.0	16	13
25	27	26	29	29	44	68	41	55	7.2	5.0	16	13
26	27	26	27	26	48	68	42	54	6.8	5.5	14	9.7
27	27	27	25	25	52	69	44	53	6.8	7.2	13	7.8
28	26	27	24	24	52	71	48	52	6.3	9.8	13	7.8
29	26	27	21	23	---	66	60	50	5.9	9.2	12	7.7
30	26	29	17	22	---	63	70	48	7.0	11	11	7.6
31	25	---	15	21	---	60	---	46	---	7.6	12	---
TOTAL	873	751	857	733	1462	2066	1584	1839	496.0	314.7	403.9	375.3
MEAN	28.2	25.0	27.6	23.6	52.2	66.6	52.8	59.3	16.5	10.2	13.0	12.5
MAX	31	30	34	30	114	85	70	95	44	15	19	18
MIN	25	22	15	14	19	46	41	41	5.9	5.0	6.6	7.6
AC-FT	1730	1490	1700	1450	2900	4100	3140	3650	984	624	801	744

CAL YR 1978 TOTAL 34476.0 MEAN 94.5 MAX 456 MIN 3.5 AC-FT 68380
WTR YR 1979 TOTAL 11754.9 MEAN 32.2 MAX 114 MIN 5.0 AC-FT 23320

YAKIMA RIVER BASIN

12503950 YAKIMA RIVER AT PARKER, WA

LOCATION.--Lat 46°30'22", long 120°27'07", in NE¼NW¼ sec.28, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, at road bridge 0.7 mi (1.1 km) east of Parker, 0.8 mi (1.3 km) upstream from Sunnyside diversion dam, and at mile 104.6 (168.3 km).

DRAINAGE AREA.--3,660 mi² (9,480 km²), approximately.

PERIOD OF RECORD.--Water years 1959-70, 1973 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: August 1959 to September 1970.

pH: August 1959 to September 1970.

WATER TEMPERATURE: August 1959 to September 1970.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is poor. Records prior to October 1972 collected at this site and published as 12505000 "near Parker."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN- DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)
OCT , 1978										
16...	1210	1320	181	7.8	12.0	30	4.0	11.8	.24	.01
NOV										
27...	1150	1290	173	8.0	3.7	10	6.0	13.4	.36	.01
DEC										
11...	1225	1770	181	7.9	1.4	15	7.0	14.4	.28	.02
FEB , 1979										
26...	0900	1010	214	7.5	4.4	35	36	12.6	.52	.04
MAR										
26...	1245	2930	127	7.8	7.8	20	7.0	13.3	--	--
APR										
23...	1245	1120	111	8.2	11.0	20	5.0	12.8	.05	.02
MAY										
07...	1225	2280	103	8.0	9.6	30	7.0	11.7	.09	.02
JUN										
04...	1240	2450	95	8.0	16.5	40	5.0	11.8	.06	.02
JUL										
23...	1205	1260	131	8.2	19.5	15	6.0	10.0	.15	.04
AUG										
20...	1030	1080	108	7.9	17.0	15	3.0	9.5	.18	.04
SEP										
10...	1220	917	170	8.3	16.5	15	2.0	12.1	.16	.06

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS PO4)
OCT , 1978									
16...	.25	.05	.36	.41	.66	2.9	.090	.02	.06
NOV									
27...	.37	.10	.20	.30	.67	3.0	.080	.04	.12
DEC									
11...	.30	.07	.35	.42	.72	3.2	.090	.05	.15
FEB , 1979									
26...	.56	.16	.40	.56	1.1	5.0	.180	.07	.21
MAR									
26...	.09	.09	--	--	--	--	.040	.03	.09
APR									
23...	.07	.02	.62	.64	.71	3.1	.050	.04	.12
MAY									
07...	.11	.05	.30	.35	.46	2.0	.060	.04	.12
JUN									
04...	.08	.05	.05	.10	.18	.80	.050	.01	.03
JUL									
23...	.19	.02	.10	.12	.31	1.4	.040	.04	.12
AUG									
20...	.22	.00	.41	.41	.63	2.8	.050	.04	.12
SEP									
10...	.22	.05	.24	.29	.51	2.3	.080	.01	.03

YAKIMA RIVER BASIN

187

12508755 DRAIN 61.0 ABOVE DRAIN 61.4 NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°20'49", long 119°56'28", in SESE4 sec.16, T.10 N., R.23 E., Yakima County, Hydrologic Unit 17030003, on right bank, 50 ft (15 m) upstream from Drain 61.4, 200 ft (61 m) upstream from Van Belle Road, and 3.1 mi (5.0 km) northeast of Sunnyside.

DRAINAGE AREA.--3.27 mi² (8.47 km²), of which 0.29 mi² (0.75 km²) is irrigated and below Rosa Canal.

PERIOD OF RECORD.--April to September 1979.

GAGE.--Water-stage recorder and artificial control. Altitude of gage 875 ft (267 m), from topographic map.

REMARKS.--Water-discharge records excellent. Principle source of flow is waste and ground-water return flows from irrigation. Station operated as part of a special project to determine sediment loss from irrigated acreages. Flow wastes into Sulphur Creek wasteway. Records of daily suspended-sediment concentration and discharge, and observed water temperatures for the period April to September, in separate data report, "QUALITY of IRRIGATION WATER DATA FROM SELECTED SITES in SOUTHEASTERN, WASHINGTON" (in preparation).

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period April to September 1979, 1.6 ft³/s (0.045 m³/s) June 14, gage height, 4.63 ft (1.41 m); minimum daily discharge during period April to September 1979, 0.04 ft³/s (0.001 m³/s) Sept. 21-29.

DISCHARGE, IN CUBIC FEET PER SECOND, APRIL TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							.30	.30	.59	1.2	.87	.27
2							.30	.30	.59	1.1	.70	.19
3							.25	.25	.48	1.0	.42	.16
4							.20	.25	.35	1.0	.18	.20
5							.15	.25	.42	.93	.23	.28
6							.20	.20	.50	.77	.46	.23
7							.20	.20	.67	.69	.18	.16
8							.30	.20	.64	.72	.24	.05
9							.35	.20	.59	.62	.34	.05
10							.35	.16	.83	.51	.34	.06
11							.35	.28	1.0	.60	.41	.05
12							.35	.33	1.0	.58	.55	.05
13							.35	.20	1.2	.52	.42	.05
14							.40	.24	1.3	.46	.36	.05
15							.40	.28	1.0	.77	.33	.05
16							.40	.26	.98	1.1	.25	.05
17							.40	.35	.98	1.0	.12	.05
18							.40	.78	.89	1.1	.08	.05
19							.40	.59	.92	1.1	.12	.05
20							.45	.53	.98	1.0	.31	.05
21							.50	.48	.95	.93	.28	.04
22							.55	.46	.89	.71	.09	.04
23							.55	.56	.86	.45	.15	.04
24							.60	.48	.83	.44	.18	.04
25							.55	.50	.78	.30	.20	.04
26							.50	.56	.82	.32	.21	.04
27							.45	.59	.75	.56	.23	.04
28							.40	.64	.76	.53	.29	.04
29							.35	.64	.81	.48	.15	.04
30							.30	.59	.99	.56	.16	.10
31							---	.56	---	.66	.21	---
TOTAL							11.25	12.21	24.33	22.71	9.06	2.61
MEAN							.38	.39	.81	.73	.29	.087
MAX							.60	.78	1.3	1.2	.67	.28
MIN							.15	.16	.35	.30	.08	.04
AC-FT							22	24	48	45	18	5.2

YAKIMA RIVER BASIN

12508769 DRAIN 60.7 NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°20'54", long 119°57'05", in SE1/4SE1/4 sec.16, T.10 N., R.23 E., Yakima County, Hydrologic Unit 17030003, on right bank, 300 ft (91 m) above confluence with Drain 59.6, 1.2 mi (1.9 km) downstream from Bridgeman Road, and 2.8 mi (4.5 km) northeast of Sunnyside.

DRAINAGE AREA.--0.92 mi² (2.38 km²), of which 0.41 mi² (1.06 km²) is irrigated and below Roza Canal.

PERIOD OF RECORD.--April to September 1979.

GAGE.--Water-stage recorder and artificial control. Altitude of gage 858 ft (262 m), from topographic map.

REMARKS.--Water-discharge records excellent except for the period Apr. 1 to May 7, which are poor. Principle source of flow is waste and ground water return flows from irrigation. Station operated as part of a special project to determine sediment loss from irrigated land. Flow wastes into Drain 59.6, then into DID 18 Drain and then into Sulphur Creek wasteway. Records of daily suspended-sediment concentration and discharge, and observed water temperatures for the period April to September, in separate data report, "QUALITY OF IRRIGATION WATER DATA FROM SELECTED SITES in SOUTHEASTERN, WASHINGTON" (in preparation).

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period April to September 1979, 2.6 ft³/s (0.074 m³/s) July 20, gage height, 8.25 ft (2.515 m); minimum during period April to September 1979, 0.28 ft³/s (0.008 m³/s) May 16.

DISCHARGE, IN CUBIC FEET PER SECOND, APRIL TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							.80	1.0	1.2	2.0	1.4	.92
2							.80	.90	1.4	1.8	1.5	1.1
3							.70	.80	1.5	1.4	1.5	1.1
4							.65	.70	1.4	1.4	1.6	1.0
5							.60	.70	1.1	1.4	1.6	.92
6							.60	.70	1.7	1.6	1.5	.90
7							.60	.70	1.5	1.7	1.5	.92
8							.60	.72	1.9	1.7	1.5	1.0
9							.60	.77	1.8	1.8	1.4	1.0
10							.60	.77	1.6	1.9	1.3	.90
11							.60	.75	1.8	1.9	1.4	.85
12							.70	.43	1.4	1.9	1.3	.85
13							.70	.39	1.4	2.0	1.2	.85
14							.70	.56	1.8	1.7	1.1	.84
15							.70	1.1	1.9	1.5	1.5	.64
16							.80	.69	1.9	1.4	1.5	.84
17							.80	.37	2.0	1.5	1.6	.83
18							.80	.47	1.9	1.5	1.5	.83
19							.80	.55	1.8	1.8	1.5	.81
20							.80	.57	1.7	1.9	1.4	.81
21							.80	1.2	1.5	1.9	1.2	.80
22							.80	.84	1.5	2.0	.94	.80
23							.80	.90	1.4	2.1	.92	.80
24							.80	1.5	1.3	2.0	.91	.82
25							.80	1.2	1.5	1.8	.90	.86
26							.80	1.1	1.6	1.7	.87	.89
27							.80	1.3	1.7	1.6	.87	.86
28							.90	1.2	1.8	1.7	1.3	.87
29							1.0	1.2	1.8	1.4	1.4	.93
30							1.1	1.3	1.8	1.7	1.4	.85
31							---	1.2	---	1.6	1.4	---
TOTAL							22.55	26.58	48.6	53.7	41.61	26.59
MEAN							.75	.86	1.62	1.73	1.35	.89
MAX							1.1	1.5	2.0	2.1	1.9	1.1
MIN							.60	.37	1.1	1.4	.87	.80
AC-FT							45	53	96	107	83	53

YAKIMA RIVER BASIN

189

12508775 DRAIN 59.6 BELOW DRAIN 60.2 NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°21'10", long 119°56'58", in SE4NW4SW4 sec.16, T.10 N., R.23 E., Yakima County, Hydrologic Unit 17030003, on left bank 10 ft (3.0 m) downstream from mouth of Drain 60.2, 300 ft (91 m) upstream from confluence with Drain 59.4, 0.61 mi (0.98 m) south of SLI road, and 3 mi (4.8 km) northeast of Sunnyside.

DRAINAGE AREA.--0.68 mi² (1.76 km²), all below Roca Canal.

GAGE.--Water-stage recorder and artificial control. Altitude of gage is 865 ft (264 m) from topographic map.

REMARKS.--Water-discharge records excellent except for the period Apr. 1 to May 8, which are poor. Principle source of flow is waste and ground water return flows from irrigation. Station is operated as part of a special project to determine sediment losses from irrigated land. Records of daily suspended-sediment concentration and discharge and observed water temperatures for the period April to September, in separate data report, "QUALITY OF IRRIGATION WATER DATA FROM SELECTED SITES in SOUTHEASTERN, WASHINGTON" (in preparation).

EXTREMES DURING CURRENT YEAR.--Maximum discharge during period April to September 1979, 3.7 ft³/s (0.105 m³/s) July 6, gage height, 4.95 ft (1.509 m); minimum daily during period April to September 1979, 1.1 ft³/s (0.031 m³/s) Sept. 21-30.

DISCHARGE, IN CUBIC FEET PER SECOND, APRIL TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							1.2	1.8	2.0	2.3	1.9	1.4
2							1.2	1.6	2.1	2.2	2.0	1.4
3							1.2	1.6	2.2	2.3	1.9	1.4
4							1.2	1.6	2.1	2.3	2.0	1.3
5							1.3	1.5	2.2	2.4	2.2	1.3
6							1.3	1.5	2.4	2.3	2.2	1.3
7							1.2	1.5	2.5	2.0	2.2	1.3
8							1.2	1.4	2.7	2.4	2.0	1.2
9							1.2	1.4	2.6	2.5	1.9	1.2
10							1.2	1.6	2.4	2.6	1.7	1.2
11							1.2	1.8	2.4	2.8	1.7	1.2
12							1.2	1.7	2.2	2.7	1.9	1.2
13							1.2	1.7	2.2	2.5	1.9	1.2
14							1.2	1.7	2.2	2.0	1.7	1.2
15							1.2	1.8	2.1	2.0	1.7	1.2
16							1.2	2.0	2.2	2.0	1.7	1.2
17							1.2	2.4	2.3	2.0	1.7	1.2
18							1.2	2.1	2.1	1.9	1.6	1.2
19							1.2	2.0	2.0	1.9	2.0	1.2
20							1.2	2.2	2.0	2.3	2.0	1.2
21							1.2	2.0	2.0	2.4	1.6	1.1
22							1.2	1.8	2.2	2.5	1.5	1.1
23							1.2	1.7	2.6	2.6	1.8	1.1
24							1.2	1.6	2.5	2.8	1.6	1.1
25							1.2	2.0	2.6	2.8	1.5	1.1
26							1.2	2.0	2.6	2.9	1.5	1.1
27							1.4	2.1	2.3	2.6	1.4	1.1
28							1.6	2.2	2.1	1.9	1.4	1.1
29							1.8	2.4	1.9	1.9	1.5	1.1
30							1.8	2.1	2.0	2.0	1.5	1.1
31							---	2.1	---	2.2	1.4	---
TOTAL							38.0	56.9	67.7	72.0	54.6	36.0
MEAN							1.27	1.84	2.26	2.32	1.78	1.20
MAX							1.8	2.4	2.7	2.9	2.2	1.4
MIN							1.2	1.4	1.9	1.9	1.4	1.1
AC-FT							75	113	134	143	108	71

YAKIMA RIVER BASIN

12508779 DRAIN 59.4 NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°21'09", long 119°57'02", in SW¼NE¼SW¼ sec.16, T.10 N., R.23 E., Yakima County, Hydrologic Unit 17030003, on right bank, 200 ft (61 m) upstream from confluence with Drain 59.6, 0.69 mi (1.11 km) south of SLI Road, and 3 mi (4.8 km) northeast of Sunnyside.

DRAINAGE AREA.--0.31 mi² (0.80 km²), all below Rora Canal.

PERIOD OF RECORD.--April to September 1979.

GAGE.--Water-stage recorder and artificial control. Altitude of gage is 865 ft (264 m), from topographic map.

REMARKS.--Water-discharge records excellent except for period Apr. 1 to May 9, which are poor. Principle source of water is waste and ground water return flow from irrigation. Station operated as part of a special project to determine sediment losses from irrigated land. Flow wastes into Drain 59.6 where some is reused for irrigation. Records of daily suspended sediment concentration and discharge, and observed water temperatures for the period April to September, in separate data report, "QUALITY of IRRIGATION WATER DATA FROM SELECTED SITES in SOUTHEASTERN WASHINGTON" (in preparation).

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period April to September 1979, 1.8 ft³/s (0.051 m³/s) July 12, gage height, 11.42 ft (3.481 m); minimum daily discharge during period April to September 1979, 0.05 ft³/s (0.001 m³/s) Apr. 1-20.

DISCHARGE, IN CUBIC FEET PER SECOND, APRIL TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							.05	.07	.41	.58	1.0	.07
2							.05	.07	.47	.69	1.2	.07
3							.05	.07	.35	.75	1.4	.07
4							.05	.07	.31	.84	1.1	.07
5							.05	.07	.33	.81	.65	.07
6							.05	.07	.53	.58	.65	.07
7							.05	.07	.22	.58	.51	.07
8							.05	.07	.15	.67	.51	.07
9							.05	.07	.16	.60	.34	.07
10							.05	.07	.11	.62	.39	.07
11							.05	.40	.26	.70	.26	.07
12							.05	.54	.84	1.1	.11	.07
13							.05	.09	.98	.45	.10	.07
14							.05	.15	.60	.26	.09	.07
15							.05	.12	.63	.24	.29	.07
16							.05	.12	1.1	.40	.53	.07
17							.05	.24	1.1	.26	.64	.07
18							.05	.80	.76	.52	.57	.07
19							.05	1.1	.22	.74	.76	.07
20							.05	.44	.16	.73	.35	.07
21							.07	.38	.24	.75	.10	.07
22							.07	.47	.44	1.0	.08	.07
23							.07	.53	.38	1.3	.14	.07
24							.07	.19	.47	1.2	.39	.07
25							.07	.25	.44	.77	.10	.07
26							.07	.34	.47	.66	.10	.07
27							.07	.38	.42	1.1	.09	.07
28							.10	.21	.45	.73	.08	.07
29							.20	.13	.40	.56	.07	.07
30							.30	.18	.43	.65	.07	.07
31							---	.22	---	.73	.07	---
TOTAL							2.09	7.98	13.83	21.57	12.74	2.10
MEAN							.070	.26	.46	.70	.41	.070
MAX							.30	1.1	1.1	1.3	1.4	.07
MIN							.05	.07	.11	.24	.07	.07
AC-FT							4.1	16	27	43	25	4.2

YAKIMA RIVER BASIN

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12508990 YAKIMA RIVER AT MABTON, WA

LOCATION.--Lat 46°13'53", long 119°59'54", in SW¼SW¼ sec.30, T.9 N., R.23 E., Yakima County, Hydrologic Unit 17030003, on right bank under county highway bridge, at east boundary of Yakima Indian Reservation, 1.1 mi (1.8 km) north of Mabton, and at mile 59.8 (96.2 km).

DRAINAGE AREA.--5,359 mi² (13,880 km²).

PERIOD OF RECORD.--October 1970 to current year. Chemical data 1971, 1974, and March 1975 to September 1976 (irrigation seasons only).

GAGE.--Water-stage recorder. Altitude of gage is 643 ft (196.0 m), from topographic map. Prior to Oct. 1, 1976, at datum 10 ft (3.05 m) higher.

REMARKS.--Records fair, except for Dec. 28 to Feb. 7, which are poor. Flow affected by storage in five reservoirs and by diversions above station for irrigation above and below station of about 424,000 acres (1,720 km²) and by return flow from irrigated area.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,200 ft³/s (1,050 m³/s) Jan. 17, 1974, gage height, 25.30 ft (7.711 m) present datum; minimum daily, 320 ft³/s (9.06 m³/s) Mar. 25, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,290 ft³/s (121 m³/s) Mar. 8, gage height, 12.57 ft (3.831 m); minimum daily discharge, 588 ft³/s (16.7 m³/s) Sept. 27, 28, gage height, 9.83 ft (2.996 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1750	1850	2030	1000	1050	2020	2420	2980	1250	766	750	889
2	1760	1750	2130	900	1030	1910	2260	2820	1790	988	707	923
3	1700	1730	2150	950	1030	1850	2000	2470	1730	1020	711	1020
4	1540	1770	2090	1000	1050	1860	1860	2250	1760	836	605	1090
5	1430	1790	2180	1050	1100	2050	1750	2220	1960	754	743	1110
6	1350	1920	2390	1000	1250	2320	1670	2500	1620	732	770	1060
7	1300	2190	2390	1100	2500	2750	1850	2540	1460	729	767	972
8	1300	1960	2210	1200	2200	3910	2180	2210	1470	821	682	865
9	1320	1810	2140	1250	2200	4190	2220	1730	1360	946	628	869
10	1370	1800	2140	1250	2750	3860	2020	1280	1320	854	661	894
11	1360	1800	2150	1300	2430	3550	1740	1060	1440	806	645	919
12	1690	1780	2130	1300	2180	3350	1550	1140	1410	838	650	859
13	1990	1770	2090	1350	2710	3340	1320	1350	1190	800	652	822
14	1930	1740	1960	1400	3560	3410	1300	1570	1080	770	707	814
15	1840	1730	1900	1400	3090	3460	1370	1710	1060	772	744	810
16	1670	1700	2020	1350	2430	3550	1420	1490	1110	807	729	813
17	1570	1710	2030	1350	2150	3680	1390	1540	1260	747	685	797
18	1500	1730	2000	1350	2040	3650	1290	1420	1490	705	700	788
19	1490	1760	1920	1300	1960	3470	1230	1180	1280	656	713	779
20	1470	1820	1900	1300	1980	2950	1330	1500	1180	638	784	767
21	2050	1820	1830	1300	1890	2900	1350	1560	1200	690	910	711
22	2250	1820	1720	1350	1800	2970	1170	1440	1040	668	825	760
23	2180	1830	1710	1350	1760	2810	1250	1620	1160	626	807	742
24	2150	1830	1670	1300	1710	3040	1360	2100	1230	654	801	700
25	2070	1790	1700	1300	1720	3250	1260	2670	1040	712	796	653
26	2050	1770	1740	1250	2080	3580	1160	2360	942	750	819	611
27	1970	1770	1730	1200	2390	3480	1150	2210	901	731	844	588
28	1860	1770	1650	1150	2240	3440	1390	2240	811	759	867	588
29	1800	1800	1400	1130	---	3170	1640	1940	763	815	813	596
30	1870	1970	1250	1100	---	2770	2450	1490	744	802	858	601
31	1900	---	1150	1100	---	2560	---	1220	---	804	942	---
TOTAL	53440	54280	59500	37630	56280	95100	48350	57890	38051	24086	23395	24410
MEAN	1724	1809	1919	1214	2010	3068	1612	1867	1268	774	755	814
MAX	2250	2190	2390	1400	3560	4190	2450	2980	1960	1020	942	1110
MIN	1300	1700	1150	900	1030	1850	1150	1060	744	626	628	588
AC-FT	106000	107700	118000	74640	111600	188600	95900	114800	75470	47620	46400	48420
CAL YR 1978 TOTAL	1210920			MEAN 3318	MAX 12200	MIN 1150	AC-FT 2402000					
WTR YR 1979 TOTAL	572332			MEAN 1568	MAX 4190	MIN 588	AC-FT 1135000					

YAKIMA RIVER BASIN

12510500 YAKIMA RIVER AT KIONA, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 46°15'13", long 119°28'37", in SE¼NE¼ sec.19, T.9 N., R.27 E., Benton County, Hydrologic Unit 17030003, on left bank just upstream from abandoned highway bridge pier at Kiona, 0.1 mi (0.2 km) upstream from highway bridge, 3.6 mi (5.8 km) downstream from Corral Canyon Creek, 5.0 mi (8.0 km) downstream from intake of Kiona Canal, and at mile 29.9 (48.1 km).

DRAINAGE AREA.--5,615 mi² (14,543 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August to December 1895 (gage heights only, fragmentary), August 1896 to March 1915, February 1933 to current year.

REVISED RECORDS.--WSP 214: 1905. WSP 1122: 1934(M). WSP 1216: 1949-50. WSP 1286: 1907(M), 1909, 1936. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 454.41 ft (138.504 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 31, 1915, nonrecording gages at approximately same site and datum. Feb. 6, 1933, to July 26, 1934, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good except period Dec. 31 to Feb. 14, which are poor. Diversions above station for irrigation of about 424,000 acres (1,720 km²). Some regulation by diversions and by Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes. The Kiona Canal bypasses station with a mean flow of approximately 23 ft³/s (0.65 m³/s) for irrigation of about 1,100 acres (4.5 km²) below station. Diversion by the Kennewick Canal, which bypasses station, began in August 1936, and diverted 84,070 acre-ft (104 hm³) during the current water year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 67,000 ft³/s (1,900 m³/s) Dec. 23, 1933, gage height, 21.57 ft (6.575 m), from high-water marks; minimum observed, 105 ft³/s (2.97 m³/s) Sept. 11, 1906, gage height, 2.35 ft (0.716 m), datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,880 ft³/s (195 m³/s) Feb. 8, gage height, 7.29 ft (2.222 m), maximum gage height, 10.79 ft (3.289 m) Feb. 7 (ice jam); minimum, 490 ft³/s (13.9 m³/s) Sept. 29, 30, gage height, 2.21 ft (0.674 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2030	2240	2290	1200	1200	2300	2660	2760	910	806	870	918
2	1910	2130	2350	1100	1260	2080	2520	2820	1150	934	774	894
3	1900	2100	2410	1150	1250	1970	2270	2390	1520	1120	726	942
4	1790	2100	2360	1200	1250	1950	2110	2170	1590	1050	678	1080
5	1650	2140	2360	1200	1300	1980	1930	2000	1560	854	670	1110
6	1500	2200	2670	1250	1600	2400	1850	2390	1500	806	758	1080
7	1480	2440	2660	1300	2300	2570	1870	2740	1270	806	798	1000
8	1400	2450	2480	1400	4100	3800	2260	2440	1150	790	766	910
9	1460	2180	2390	1450	2470	4400	2380	2090	1130	950	686	822
10	1510	2130	2440	1500	2750	4100	2210	1610	1060	1070	588	870
11	1560	2120	2470	1500	2850	3800	1940	1300	1030	942	638	918
12	1580	2090	2400	1550	2520	3500	1710	1120	1100	950	595	886
13	2150	2060	2370	1600	2740	3500	1570	1150	1070	942	595	798
14	2370	2030	2290	1600	3800	3550	1360	1360	942	902	678	766
15	2300	2030	2160	1600	3830	3600	1350	1550	862	854	774	774
16	2190	1990	2270	1600	2840	3660	1460	1420	846	822	734	782
17	2070	2010	2300	1550	2400	3750	1480	1330	995	878	686	774
18	2020	2040	2220	1550	2190	3770	1410	1330	1220	838	638	766
19	1980	2080	2200	1550	2130	3680	1380	1150	1280	694	662	750
20	1990	2110	2140	1550	2180	3140	1290	1040	1120	560	686	750
21	2300	2120	2120	1600	2080	2940	1380	1350	1130	574	830	678
22	2700	2120	2050	1650	1950	3030	1310	1270	1130	678	926	623
23	2600	2130	1980	1600	1900	2850	1200	1230	1040	654	846	718
24	2590	2110	1980	1530	1850	3090	1310	1560	1290	616	814	678
25	2400	2090	1990	1500	1800	3320	1330	2100	1170	662	814	616
26	2420	2070	2040	1470	2020	3620	1210	2150	934	718	798	595
27	2360	2050	2040	1450	2360	3760	1110	1840	878	766	806	532
28	2230	2050	1920	1400	2640	3440	1150	1900	766	750	854	511
29	2170	2090	1750	1370	---	3400	1420	1760	702	806	878	497
30	2200	2250	1490	1350	---	2990	1940	1410	758	870	838	497
31	2260	---	1300	1300	---	2770	---	1060	---	846	962	---
TOTAL	63250	63770	67800	44620	63600	98750	50290	53790	33013	25508	23266	23535
MEAN	2040	2126	2190	1439	2271	3185	1676	1735	1100	823	751	785
MAX	2700	2460	2670	1650	4100	4400	2660	2820	1590	1120	926	1110
MIN	1460	1990	1300	1100	1250	1950	1110	1040	702	560	588	497
AC-FT	125500	126500	134700	88500	126200	195900	99750	106700	65480	50600	46150	46680
CAL YR 1978 TOTAL	1321010	MEAN	3614	MAX	12600	MIN	1280	AC-FT	2620000			
WTR YR 1979 TOTAL	611282	MEAN	1675	MAX	4400	MIN	497	AC-FT	1212000			

NOTE.--Ice effect Dec. 31 to Feb. 8.

YAKIMA RIVER BASIN

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12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER-QUALITY RECORDS

LOCATION.--Water quality data obtained at the highway bridge 0.1 mi (0.2 km) downstream from gage.

PERIOD OF RECORD.--Water years 1953 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1952 to September 1969 (composite samples), October 1969 to September 1977.

WATER TEMPERATURES: December 1952 to current year.

SUSPENDED SEDIMENT: June 1977 to current year.

REMARKS.--Water temperatures collected once daily by observer.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum, 29.0°C July 18, 1960, July 12, 1961; minimum, 0.0°C on several days during winter months most years.

SUSPENDED CONCENTRATIONS: Maximum daily mean, 1,750 mg/L Dec. 4, 1977; minimum daily mean, 1 mg/L Dec. 11, 14, 1978.

SEDIMENT LOADS: Maximum daily, 110,000 tons (99,800 tonne) Dec. 4, 1977; minimum daily, 6.2 tons (5.6 tonne) Dec 14, 1978.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum observed, 28.0°C May 19; minimum observed, 0.0°C several days during January.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 460 mg/L Feb. 8; minimum daily mean, 1 mg/L Dec. 11, 14.

SEDIMENT LOADS: Maximum daily, 5,090 tons (4,620 tonne) Feb. 8; minimum daily, 6.2 tons (5.6 tonne) Dec. 14.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-WF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT + 1978											
13...	1000	2060	332	7.8	12.1	.60	16.8	61	37	130	0
NOV											
06...	1415	2210	300	8.4	9.5	1.5	13.7	21	3	120	0
DEC											
13...	1130	2380	233	8.0	1.8	.90	13.6	28	170	96	1
JAN + 1979											
09...	1530	1450	320	7.8	.0	2.3	11.7	17	85	120	0
FEB											
20...	1515	2270	287	7.8	4.7	5.6	12.8	17	420	110	0
MAR											
16...	1045	3660	190	8.0	8.4	11	12.6	220	100	76	0
APR											
09...	1300	2360	212	8.3	12.5	6.0	13.3	23	60	82	0
MAY											
07...	1530	2700	300	8.2	15.8	11	11.4	72	70	73	0
JUN											
05...	1100	1540	270	7.8	21.0	6.7	10.0	75	540	110	6
JUL											
05...	1100	854	335	8.9	22.0	15	10.0	70	530	130	0
AUG											
06...	1230	766	348	8.8	23.5	8.5	11.4	25	1900	160	8
SEP											
05...	1030	1100	362	8.2	19.2	8.2	8.9	100	1400	150	3

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT + 1978											
13...	34	12	20	24	.8	4.0	140	22	8.0	.2	26
NOV											
06...	30	11	18	24	.7	3.1	120	19	7.1	.2	25
DEC											
13...	24	8.7	16	26	.7	2.6	95	19	6.8	.2	24
JAN + 1979											
09...	28	11	19	26	.8	3.1	120	17	8.8	.2	29
FEB											
20...	26	9.9	17	25	.7	3.5	110	18	8.6	.2	26
MAR											
16...	19	7.0	11	23	.5	2.0	78	8.9	5.5	.1	20
APR											
09...	20	7.8	14	26	.7	2.3	94	13	6.1	.2	20
MAY											
07...	18	6.8	12	26	.6	2.2	80	14	4.6	.2	21
JUN											
05...	27	9.4	17	25	.7	3.2	100	18	6.4	.2	21
JUL											
05...	32	12	21	25	.8	4.1	130	25	8.2	.2	19
AUG											
06...	40	14	24	24	.8	4.3	150	29	8.7	.3	23
SEP											
05...	38	14	25	26	.9	4.1	150	27	7.5	.3	29

YAKIMA RIVER BASIN

12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER QUALITY DATA

DATE	SOLIDS, RESIDUE AT 100 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 100 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)
OCT * 1978											
13...	219	210	.30	1220	9	1.4	.01	.48	.49	.00	.50
NOV											
06...	195	186	.27	1160	1	.53	.01	.53	.54	.16	.38
DEC											
13...	153	158	.21	983	9	1.1	.05	.29	.34	.07	.27
JAN * 1979											
09...	196	188	.27	767	5	1.0	.02	.37	.39	.02	.37
FEB											
20...	170	175	.23	1040	12	.85	.13	.35	.48	.10	.38
MAR											
16...	119	120	.16	1180	57	.58	.05	.40	.45	.32	.13
APR											
09...	142	140	.19	905	26	.54	.01	.30	.31	--	--
MAY											
07...	127	127	.17	926	46	.86	.07	.09	.16	.00	.19
JUN											
05...	170	162	.23	707	49	.95	.01	.59	.60	.06	.54
JUL											
05...	288	200	.28	480	47	1.0	.01	.09	.10	.02	.08
AUG											
06...	234	233	.32	484	40	.42	.00	.67	.67	.45	.22
SEP											
05...	232	235	.32	689	24	1.5	.01	.66	.67	.31	.36

DATE	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT * 1978										
13...	1.9	8.4	.120	.070	--	7.3	.6	11	61	90
NOV										
06...	1.1	4.7	.100	.070	2.2	--	--	8	48	92
DEC										
13...	1.4	6.4	.110	.110	2.0	--	--	--	--	--
JAN * 1979										
09...	1.4	6.2	.140	.140	--	1.8	.4	68	266	80
FEB										
20...	1.3	5.4	.210	.160	2.8	--	--	19	116	86
MAR										
16...	1.0	4.6	.080	.070	3.0	--	--	66	652	--
APR										
09...	.85	3.8	.070	.060	--	2.4	4.3	31	198	--
MAY										
07...	1.0	4.5	.120	.080	3.7	--	--	53	386	91
JUN										
05...	1.6	6.9	.110	.030	3.9	--	--	45	187	--
JUL										
05...	1.1	4.9	.140	.040	--	5.5	1.3	43	99	90
AUG										
06...	1.1	4.8	.110	.080	7.1	--	--	42	87	85
SEP										
05...	2.2	9.6	.120	.100	4.4	--	--	9	27	98

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDED RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDED RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT * 1978										
13...	1000	2	2	0	0	0	--	--	--	0
JAN * 1979										
09...	1530	2	2	100	80	20	1	0	<1	10
APR										
09...	1300	2	2	0	0	20	0	0	<1	10
JUL										
05...	1100	2	2	100	60	40	1	0	<1	10

DATE	CHRO- MIUM, SUS- PENDED RECOV. (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDED RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDED RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDED RECOV- ERABLE (UG/L AS FE)
OCT * 1978										
13...	0	0	0	0	0	9	6	3	360	320
JAN * 1979										
09...	10	0	2	0	<3	11	5	6	270	110
APR										
09...	10	0	3	0	<3	5	4	1	1200	1200
JUL										
05...	10	0	0	0	<3	14	13	1	1300	1100

YAKIMA RIVER BASIN

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12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER QUALITY DATA

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDE- RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDE- RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDE- RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)
OCT * 1978										
13...	40	--	--	--	50	30	20	.0	.0	.0
JAN * 1979										
09...	160	9	7	2	50	20	30	.0	.0	.0
APR										
09...	50	9	9	0	80	80	20	.1	.0	.1
JUL										
05...	200	22	22	0	130	120	9	.1	.1	.0

DATE	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	SELE- NIUM, SUS- PENDE- RECOV- ERABLE (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDE- RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE- RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT * 1978									
13...	0	0	0	0	0	0	20	0	20
JAN * 1979									
09...	0	0	0	0	0	0	20	20	<3
APR									
09...	0	0	0	0	0	0	20	20	<3
JUL									
05...	0	0	0	0	0	0	50	50	3

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)
NOV * 1978											
06...	1415	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB * 1979											
20...	1515	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY											
07...	1530	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG											
06...	1230	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)
NOV * 1978										
06...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB * 1979										
20...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY										
07...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG										
06...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	TIME	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PHYTON BIOMASS TOTAL CHROMO- FLUOROM (MG/M2)	CHLOR-B PHYTON BIOMASS TOTAL CHROMO- FLUOROM (MG/M2)	LENGTH OF EXPO- SURE (DAYS)
OCT * 1978						
13...	1000	3.54	5.04	5.03	3.39	38
APR * 1979						
09...	1300	.080	.160	.140	.000	24
JUL						
05...	1100	1.81	2.52	10.8	1.55	30

YAKIMA RIVER BASIN

12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW INSTAN- TANEOUS (CFS)	TEMPER- ATURE (DEG C)	SEDIM- ENT SUS- PENDED (MG/L)	SEDIM- ENT DIS- CHARGE SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .008 MM
FEB. 1979								
14...	1450	3780	4.8	240	2450	29	52	69
MAR								
16...	1045	3660	8.4	66	652	29	35	48

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. FALL DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .125 MM	SED. SUSP. FALL DIAM. % FINER THAN .250 MM	SED. SUSP. FALL DIAM. % FINER THAN .500 MM	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM
FEB. 1979							
14...	80	87	98	94	99	100	--
MAR							
16...	66	83	85	90	95	99	100

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL				MAY			JUNE		
1	384			378			926	80	225
2	300			1100			1020	150	413
3	250			1380			1560	120	505
4	225			1130			1580	120	512
5	225			1110			1590	120	515
6	342			1080			1730	120	561
7	646			870			1800	110	535
8	710			862			1580	180	427
9	678			942			1300	97	340
10	1230			942			1110	45	135
11	1340			926			959	36	93
12	959			968			670	26	47
13	623			1030			630	26	44
14	414			894			854	30	69
15	360			654			814	33	73
16	441			646			814	32	70
17	402			774			710	35	67
18	342			798			574	35	54
19	312			742			525	34	48
20	289			581			546	34	50
21	262			654			630	34	58
22	245			862			638	34	59
23	245			854			595	37	59
24	245			1000			588	38	60
25	245			1130			588	45	71
26	434			1060			546	43	63
27	477			972			518	49	69
28	798			774			525	55	78
29	462			870			574	55	85
30	396			1020			567	53	81
31	---			1020			---	---	---
TOTAL	14781			27953			27061	---	5466

NOTE.--Not previously published.

YAKIMA RIVER BASIN

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12510500 YAKIMA RIVER AT KIONA, WA--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	689	55	90	886	45	108	1860	53	266
2	646	56	47	926	47	118	1820	51	251
3	682	62	101	694	52	126	1750	47	222
4	662	47	84	782	53	112	1930	50	261
5	1060	63	160	630	42	71	2020	54	295
6	1090	53	156	630	57	97	1930	48	250
7	986	58	154	846	57	130	1810	31	151
8	942	51	130	1100	53	157	1610	35	152
9	910	37	91	1120	45	136	1440	33	130
10	798	32	69	986	26	69	1440	33	128
11	806	28	61	790	16	34	1470	31	123
12	966	33	86	670	8	14	1490	29	117
13	950	43	110	694	27	51	1470	27	107
14	878	29	69	774	30	63	1380	25	93
15	838	180	467	854	46	92	1320	24	86
16	870	46	108	878	57	135	1360	25	92
17	854	32	74	870	41	96	1440	28	109
18	878	42	100	774	25	52	1500	31	126
19	1110	55	165	830	50	113	1560	34	143
20	1160	54	169	1070	25	72	1540	29	121
21	1010	58	158	934	49	124	1450	27	106
22	862	35	81	862	50	116	1400	27	102
23	798	20	43	918	41	102	1420	26	100
24	790	38	81	1130	52	159	1660	34	152
25	790	26	55	1260	44	150	1880	38	193
26	782	18	38	1460	48	189	2010	36	195
27	782	36	80	1480	40	160	2120	42	240
28	814	48	105	1490	40	193	2170	36	211
29	870	47	110	1490	40	161	2190	34	201
30	886	51	122	1650	58	258	2210	42	251
31	878	53	126	1670	55	248	---	---	---
TOTAL	26879	---	3490	31356	---	3786	50670	---	4974

NOTE:--Not previously published.

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	2030	15	62	2240	8	48	2290	3	19
2	1910	11	57	2130	6	35	2350	4	25
3	1900	8	41	2100	8	45	2410	3	20
4	1790	10	48	2100	8	45	2360	6	38
5	1650	10	45	2140	9	52	2360	2	13
6	1560	7	29	2200	10	49	2670	3	22
7	1480	8	32	2460	8	53	2660	2	14
8	1460	11	43	2450	8	53	2480	20	134
9	1460	8	32	2180	7	41	2390	2	13
10	1510	10	41	2130	15	86	2440	2	13
11	1560	18	76	2120	5	29	2470	1	6.7
12	1580	10	43	2090	4	23	2400	3	19
13	2150	15	87	2060	4	22	2370	2	13
14	2370	15	96	2030	4	22	2290	1	6.2
15	2300	21	138	2030	4	22	2160	3	17
16	2190	18	106	1990	4	21	2270	3	18
17	2070	14	78	2010	3	16	2300	5	31
18	2020	17	93	2040	4	22	2220	4	24
19	1980	16	80	2080	3	17	2200	4	24
20	1990	20	107	2110	2	11	2140	6	35
21	2300	10	62	2120	3	17	2120	9	52
22	2700	13	95	2120	4	23	2050	6	33
23	2680	14	98	2130	4	23	1980	7	37
24	2590	11	77	2110	6	34	1980	7	37
25	2460	11	73	2090	5	28	1990	7	38
26	2420	16	105	2070	4	22	2040	4	22
27	2360	7	45	2050	5	28	2040	5	28
28	2230	8	44	2050	6	33	1920	6	31
29	2170	8	47	2090	4	23	1750	6	28
30	2200	20	119	2250	2	12	1490	6	24
31	2260	13	79	---	---	---	1300	6	21
TOTAL	63250	---	2208	63770	---	965	67690	---	855.9

YAKIMA RIVER BASIN

12510500 YAKIMA RIVER AT KIONA, WA--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	1200	5	16	1200	50	173	2300	32	199
2	1100	5	15	1260	80	294	2080	26	146
3	1150	5	16	1250	70	236	1970	18	96
4	1200	5	16	1250	80	270	1950	22	116
5	1200	5	16	1300	80	201	1980	19	102
6	1250	5	17	1600	90	389	2400	41	266
7	1300	4	14	2300	110	683	2570	25	173
8	1400	4	15	4100	460	5090	3800	132	1350
9	1450	4	16	2470	160	1070	4400	145	1720
10	1500	5	20	2750	140	1040	4100	133	1470
11	1500	10	40	2850	120	923	3800	74	759
12	1550	15	63	2520	110	748	3500	48	454
13	1600	20	86	2740	100	740	3500	52	491
14	1600	30	130	3800	160	1640	3550	56	537
15	1600	40	173	3830	146	1510	3600	66	642
16	1600	50	216	2840	100	767	3660	73	721
17	1550	65	272	2400	41	266	3750	44	445
18	1550	80	335	2190	36	213	3770	52	529
19	1550	98	410	2130	26	150	3680	44	437
20	1550	100	418	2180	19	112	3140	46	390
21	1600	80	346	2080	17	95	2940	48	381
22	1650	70	312	1950	15	79	3030	67	548
23	1600	70	302	1900	19	97	2850	73	562
24	1530	60	248	1850	15	75	3090	74	617
25	1500	60	243	1800	17	83	3320	70	627
26	1470	60	238	2020	20	109	3620	65	635
27	1450	50	196	2320	27	169	3760	80	812
28	1400	50	189	2640	23	164	3480	42	395
29	1370	50	185	---	---	---	3400	46	422
30	1350	50	182	---	---	---	2990	42	339
31	1300	50	175	---	---	---	2770	32	239
TOTAL	44620	---	4920	63600	---	17376	98750	---	16620

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	2660	32	230	2760	70	522	910	42	103
2	2520	27	184	2620	93	708	1150	28	87
3	2270	25	153	2390	92	594	1520	26	107
4	2110	22	125	2170	53	311	1590	25	107
5	1930	20	104	2000	48	259	1560	40	168
6	1850	25	125	2390	54	348	1500	40	162
7	1870	19	96	2740	55	407	1270	37	127
8	2260	28	171	2440	44	290	1150	32	99
9	2380	30	193	2090	40	226	1130	25	76
10	2210	25	149	1610	30	130	1060	22	63
11	1940	23	120	1300	24	84	1030	28	78
12	1710	21	97	1120	24	73	1100	28	83
13	1570	20	85	1150	24	75	1070	30	87
14	1360	22	81	1360	48	176	942	33	84
15	1350	23	84	1550	24	100	862	34	79
16	1460	16	63	1420	70	268	846	40	91
17	1480	16	64	1330	30	108	995	43	116
18	1410	12	44	1330	44	158	1220	46	152
19	1300	14	49	1150	32	99	1280	54	187
20	1290	20	70	1040	44	124	1120	48	145
21	1380	15	56	1350	36	131	1130	42	128
22	1310	21	74	1270	40	137	1130	38	116
23	1200	21	68	1230	38	126	1040	36	101
24	1310	19	67	1560	54	227	1200	32	104
25	1330	17	61	2100	45	255	1170	37	117
26	1210	15	44	2150	58	337	934	36	91
27	1110	17	51	1640	39	194	878	36	85
28	1150	66	205	1900	47	241	766	35	72
29	1420	47	180	1760	32	152	702	33	63
30	1940	33	173	1410	30	114	758	37	76
31	---	---	---	1060	34	97	---	---	---
TOTAL	50290	---	3273	53790	---	7071	33013	---	3154

YAKIMA RIVER BASIN

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12510500 YAKIMA RIVER AT KIONA, WA--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY); WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	806	52	113	870	44	103	918	42	104
2	934	60	151	774	46	96	894	33	80
3	1120	54	163	726	41	80	942	38	97
4	1050	42	119	678	37	68	1080	48	140
5	854	46	106	670	46	83	1110	15	45
6	806	40	87	758	51	104	1080	24	70
7	806	38	83	798	35	75	1000	27	73
8	790	52	111	766	31	64	910	17	42
9	950	60	154	686	30	56	822	17	38
10	1070	78	225	588	40	64	870	22	52
11	942	59	150	638	38	65	918	16	40
12	950	48	123	595	36	58	886	13	31
13	942	48	122	595	38	61	798	13	28
14	902	54	132	678	44	81	766	18	37
15	854	44	101	774	32	67	774	18	38
16	822	42	93	734	34	67	782	15	32
17	878	32	76	686	28	52	774	14	29
18	838	32	72	638	32	55	766	10	21
19	694	31	58	662	24	43	750	10	20
20	560	42	84	686	28	52	750	10	20
21	574	48	74	830	59	132	678	21	38
22	678	48	88	926	30	75	623	17	29
23	654	40	71	846	38	69	718	22	43
24	618	40	67	814	30	66	678	10	18
25	662	40	71	814	30	66	616	18	30
26	718	56	109	798	29	62	595	8	13
27	766	56	116	806	38	83	532	17	24
28	750	48	97	854	28	65	511	15	21
29	806	48	104	878	31	73	497	8	11
30	870	53	124	838	30	68	497	13	17
31	846	57	130	862	37	86	---	---	---
TOTAL	25508	---	3354	23266	---	2239	23535	---	1281
YEAR	611282	---	63306.9	---	---	---	---	---	---

TEMPERATURE (DEG. C) OF WATER; WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
PM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	9.0	5.0	---	---	7.0	9.5	18.0	21.5	22.5	24.5	20.0
2	16.0	8.0	5.0	---	---	7.0	10.0	18.5	22.5	21.5	24.0	20.0
3	15.5	8.0	5.0	---	---	6.0	10.0	20.0	22.5	19.0	24.0	19.0
4	15.0	9.0	5.5	---	---	7.0	11.0	22.0	22.0	21.0	24.5	18.5
5	15.0	4.5	5.0	---	---	8.5	12.0	23.0	21.0	22.0	24.0	19.0
6	15.0	10.0	4.5	---	---	10.0	12.0	23.0	21.5	24.0	23.5	21.0
7	15.5	11.0	3.5	---	---	11.0	12.0	16.0	18.0	24.0	22.0	21.5
8	14.0	10.5	2.0	---	---	11.0	11.5	19.0	20.0	24.0	23.0	11.5
9	16.0	10.0	2.0	0.0	5.5	8.5	12.5	13.5	23.0	24.0	22.0	19.5
10	15.0	6.0	2.0	---	---	7.0	11.5	16.5	24.0	22.5	22.0	18.5
11	15.0	9.5	3.0	---	---	7.0	11.5	15.0	24.5	21.0	22.0	20.5
12	14.5	4.5	3.0	---	---	9.0	11.0	18.5	24.5	22.0	22.0	22.0
13	12.0	4.0	2.0	---	---	6.0	9.0	12.0	20.0	21.0	21.0	22.0
14	13.5	3.5	3.0	---	---	5.5	8.0	11.5	21.5	20.5	21.5	20.5
15	13.0	2.0	3.0	---	---	4.0	9.5	12.0	22.0	20.0	21.5	18.5
16	13.0	3.0	3.5	---	3.5	8.5	12.0	23.5	20.5	24.5	21.5	19.0
17	12.0	3.5	3.0	---	3.5	9.5	12.5	25.0	21.0	24.0	21.5	21.0
18	12.5	3.5	3.0	---	5.0	10.0	13.0	27.0	21.0	25.0	22.0	22.5
19	12.5	3.0	2.0	0.0	5.0	10.0	12.5	28.0	21.0	25.0	23.0	22.5
20	13.0	3.0	2.5	---	4.5	10.0	13.5	21.5	21.0	25.5	23.0	22.5
21	12.0	3.0	3.5	---	5.0	10.5	13.0	22.5	19.5	24.0	23.0	20.0
22	12.0	3.0	4.0	0.0	5.0	10.0	13.0	22.5	21.5	23.0	23.5	19.5
23	12.0	3.5	5.0	---	5.5	11.0	13.0	22.0	22.0	22.5	22.0	19.5
24	11.0	4.0	4.5	---	6.0	11.0	14.0	22.0	24.0	24.0	22.0	18.0
25	10.0	4.0	4.0	---	6.5	11.0	17.0	22.0	25.0	24.0	23.0	18.0
26	4.5	5.0	4.0	---	8.0	11.0	17.5	22.5	25.0	24.0	22.5	18.5
27	10.0	4.5	2.5	---	7.0	9.5	18.0	22.0	24.0	24.0	22.5	18.0
28	9.0	4.0	1.0	---	7.5	9.5	18.5	18.5	24.0	24.5	23.0	18.5
29	9.0	4.0	---	---	---	9.0	19.0	16.0	25.0	24.0	22.5	18.0
30	8.5	4.5	---	---	---	9.5	19.5	19.5	24.0	23.5	22.0	18.0
31	8.0	---	---	---	---	---	---	20.5	---	24.0	21.0	---
MEAN	13.0	5.5	3.5	0.0	5.5	9.0	13.0	20.5	22.0	23.5	22.5	20.0
WTH YR 1979	MEAN	14.5	MAX	28.0	MIN	0.0	---	---	---	---	---	---

YAKIMA RIVER BASIN

12510500 YAKIMA RIVER AT KIONA, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE TIME	NOV 6.78 1415	MAR 16.79 1045	MAY 5.79 1100	MAY 7.79 1500				
TOTAL CELLS/ML	1900	3200	13000	4100				
DIVERSITY: DIVISION	0.1	1.0	1.4	0.9				
..CLASS	0.1	1.0	1.4	0.9				
..ORDER	1.1	1.7	1.8	1.4				
...FAMILY	2.2	2.5	2.1	1.7				
....GENUS	2.3	2.6	2.7	1.8				
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
...CHLOROCOCCALES								
....CHLOROCOCCACEAE								
....CHLOROCOCCUM	--	--	--	--				
....HYDRODICTYACEAE								
....PEDIASTHUM	--	--	--	--	200	2	--	--
....MICRACTINIACEAE								
....MICRACTINIUM	--	--	--	--			230	6
....OOCYSTACEAE								
....ANKISTRODES MUS	--	--	--	--	400	3	58	1
....CHLORELLA	--	--	--	--	--	--	--	--
....CHODATELLA	--	--	--	--	--	--	--	--
....DICHOTOMOCOCCUS	--	--	--	--	--	--	--	--
....KIRCHNERIELLA	--	--	--	--	--	--	--	--
....OOCYSTIS	--	--	--	--	--	--	--	--
....TREUBARIA	--	--	--	--	--	--	--	--
....SCENEDESMAEAE								
....ACTINASTHUM	--	--	--	--				
....SCENEDES MUS	--	--	--	--	1500	12	120	3
....TETRASTHUM	--	--	--	--	--	--	--	--
....VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	35	2	59	2	67	1	--	--
....PLATYMONAS	--	--	--	--	--	--	--	--
CHRYSTOPHYTA								
..BACILLARIOPHYCEAE								
...CENTRALES								
....COSCINODISCACEAE								
....CYCLOTELLA	950#	51	840#	27	200	2	2800#	69
....MELOSIRA	--	--	--	--	1300	10	120	3
....SKELETONEMA	--	--	--	--	--	--	--	--
....STEPHANODISCUS	--	--	--	--	5400#	43	--	--
...PENNALES								
....ACHMANTHACEAE								
....RHODOSIPHENIA	53	3	--	--	--	--	--	--
....CYMBELLACEAE								
....CYMBELLA	18	1	200	6	--	--	29	1
....DIATOMACEAE								
....DIATOMA	190	10	310	10	--	--	--	--
....FRAGILARIACEAE								
....FRAGILARIA	--	--	120	4	--	--	--	--
....SYNEURA	120	7	--	--	670	5	24	1
....GOMPHONEMACEAE								
....GOMPHONEMA	18	1	20	1	--	--	29	1
....NAVICULACEAE								
....FRUSTULIA	--	--	20	1	--	--	--	--
....NAVICULA	300#	16	930#	17	--	--	58	1
....NEIDIUM	71	4	--	--	--	--	--	--
....NITZSCHACEAE								
....NITZSCHIA	88	5	79	2	600	5	260	6
CRYPTOPHYTA (CRYPTOMONADS)								
..CRYPTOPHYCEAE								
...CRYPTOMONADALES								
....CRYPTOMONADACEAE								
....CRYPTOMONAS	--	--	--	--	200	2	--	--
CYANOPHYTA (BLUE-GREEN ALGAE)								
..CYANOPHYCEAE								
...CHROCOCCALES								
....CHROCOCCACEAE								
....AGMENELLUM	--	--	--	--	540	4	--	--
....ANACYSTIS	--	--	--	--	1500	12	--	--
...MORMONONALES								
....OSCILLATOIACEAE								
....OSCILLATOIHA	--	--	980#	31	--	--	290	7
....SCHIZOTHRIA	--	--	--	--	--	--	--	--
EUGLENOPHYTA (EUGLENOIDS)								
..EUGLENOPHYCEAE								
...EUGLENALES								
....EUGLENACEAE								
....EUGLENA	--	--	--	--	--	--	58	1

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* - OBSERVED ORGANISM; MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

YAKIMA RIVER BASIN

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12510500 YAKIMA RIVER AT KIONA, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO SEPTEMBER 1979

DATE TIME	JUN 5.79 1100	JUL 5.79 1100	AUG 6.79 1230	SEP 5.79 1030				
TOTAL CELLS/ML	5600	13000	57000	13000				
DIVERSITY: DIVISION	0.6	1.4	1.5	1.6				
..CLASS	0.6	1.4	1.5	1.6				
...ORDER	1.4	1.8	1.6	0.0				
...FAMILY	1.6	2.1	1.7	0.0				
...GENUS	2.4	2.7	2.6	0.0				
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
...CHLOROCOCCALES								
....CHLOROCOCCACEAE								
.....CHLOROCOCCUM	--	--	--	--	--	--	92	1
....HYDRODICTYACEAE								
.....PEDIASTRUM	--	--	200	2	--	--	430	3
....MICRACTINIACEAE								
.....MICRACTINIUM	--	--	--	--	--	--	--	--
....OOCYSTACEAE								
.....ANKISTRODESMUS	76	1	400	3	1500	3	*	0
....CHLORELLA	--	--	--	--	--	--	400	3
....CHODATELLA	--	--	--	--	*	0	--	--
....DICHOTOMOCOCCUS	--	--	--	--	850	1	--	--
....KIRCHNERIELLA	--	--	--	--	*	0	--	--
....OOCYSTIS	--	--	--	--	1900	3	--	--
....TREUBARIA	--	--	--	--	*	0	--	--
....SCENEDESMACEAE								
.....ACTINASTRUM	--	--	--	--	--	--	250	2
....SCENEDESMUS	530	10	1500	12	4500	8	1200	10
....TETRASTHUM	150	3	--	--	--	--	120	1
....VOLVOCALES								
....CHLAMYDOMONADACEAE								
.....CHLAMYDOMONAS	110	2	67	1	*	0	92	1
....PLATYMONAS	--	--	--	--	--	--	*	0
CHYRYSOPHYTA								
..BACILLARIOPHYCEAE								
...CENTRALES								
....COSCINOIDSACEAE								
.....CYCLOTELLA	1100#	19	200	2	13000#	23	1600	13
....HELOSIRA	150	3	1300	10	8100	14	2300#	18
....SKELETONEMA	--	--	--	--	--	--	210	2
....STEPHANODISCUS	2500#	44	5400#	43	--	--	--	--
...PENNALES								
....ACHNANTHACEAE								
....RHODOSPHECIA	--	--	--	--	--	--	--	--
....CYMBELLACEAE								
.....CYMBELLA	--	--	--	--	--	--	--	--
....DIATOMACEAE								
.....DIATOMA	--	--	--	--	--	--	--	--
....FRAGILARIACEAE								
.....FRAGILARIA	270	5	--	--	--	--	--	--
....SYNEUKA	--	--	670	5	420	1	150	1
....GOMPHONEMACEAE								
.....GOMPHONEMA	--	--	--	--	--	--	--	--
....NAVICULACEAE								
.....FRUSTULIA	--	--	--	--	--	--	--	--
....NAVICULA	76	1	--	--	--	--	*	0
....NEIDITUM	--	--	--	--	--	--	--	--
....NITZSCHACEAE								
.....NITZSCHIA	640	12	600	5	--	--	210	2
CRYPTOPHYTA (CRYPTOMONADS)								
..CRYPTOPHYCEAE								
...CRYPTOMONADALES								
....CRYPTOMONADACEAE								
.....CRYPTOMONAS	--	--	200	2	--	--	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)								
..CYANOPHYCEAE								
...CHROCOCCALES								
....CHROCOCCACEAE								
.....AGMENELLUM	--	--	540	4	5900	10	--	--
....ANACYSTIS	--	--	1500	12	20000#	36	--	--
...MORPHOGONALES								
....OSCILLATORIACEAE								
.....OSCILLATORIA	--	--	--	--	--	--	3500#	27
....SCHIZOTHRAX	--	--	--	--	--	--	2000#	16
EUGLENOPHYTA (EUGLENOIDS)								
..EUGLENOPHYCEAE								
...EUGLENALES								
....EUGLENACEAE								
.....EUGLENA	--	--	--	--	--	--	--	--

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
 * - OBSERVED ORGANISM; MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

ESQUATZEL COULEE BASIN

12512550 PROVIDENCE COULEE NEAR CUNNINGHAM, WA

LOCATION.--Lat 46°48'11", long 118°48'55", in SE4NE4 sec.8, T.15 N., R.32 E., Adams County, Hydrologic Unit 17020016, on right bank 0.5 mi (0.8 km) downstream from Gillis Road, 0.8 (1.3 km) upstream from State Highway 26, and 1.4 mi (2.3 km) southwest of Cunningham.

DRAINAGE AREA.--52.1 mi² (134.9 km²).

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,115 ft (340 m), from topographic map.

REMARKS.--Records good. No known diversions. An undetermined amount of ground water withdrawals for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 711 ft³/s (20.1 m³/s) Feb. 9, 1979, gage height, 5.40 ft (1.646 m); no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 711 ft³/s (20.1 m³/s) Feb. 9, gage height, 5.40 ft (1.646 m); no flow during most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	8.7	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	31	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	259	.00	.00	.19	.00	.00	.00	.00
10	.00	.00	.00	.00	125	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	48	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	60	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	42	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	3.4	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.33	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.82	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
31	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
TOTAL	.00	.00	.00	.00	578.25	.00	.00	.19	.00	.00	.00	.00
MEAN	.000	.000	.000	.000	20.7	.000	.000	.006	.000	.000	.000	.000
MAX	.00	.00	.00	.00	259	.00	.00	.19	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	1150	.00	.00	.4	.00	.00	.00	.00

CAL YR 1978 TOTAL 3.00 MEAN .008 MAX 2.0 MIN .00 AC-FT 6.0
WTH YR 1979 TOTAL 578.44 MEAN 1.58 MAX 259 MIN .00 AC-FT 1150

ESQUATZEL COULEE BASIN

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12513000 ESQUATZEL COULEE AT CONNELL, WA

LOCATION.--Lat 46°39'31", long 118°52'03", in SE¼NW¼ sec.36, T.14 N., R.31 E., Franklin County, Hydrologic Unit 17020016, on right bank 500 ft (152 m) upstream from outlet of local sewage treatment plant, at Connell, 3.0 mi (4.8 km) downstream from left bank tributary, and 8.4 mi (13.5 km) downstream from Hatton Coulee.

DPAINAGE AREA.--234 mi² (606 km²).

PERIOD OF RECORD.--January 1953 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 820.68 ft (250.143 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 7, 1959, at site 0.3 mi (0.5 km) upstream at different datum, and Aug. 7, 1959, to July 8, 1967, at site 900 ft (274 m) downstream at present datum.

REMARKS.--Records fair. No diversion. Published flows August 1959 to September 1964 include effluent from sewage treatment plant 500 ft (152 m) downstream; records adjusted to exclude effluent October 1964 to June 1967.

AVERAGE DISCHARGE.--27 years, 1.24 ft³/s (0.0351 m³/s), 898 acre-ft/yr (1.11 hm³/yr), adjusted for effluent from sewage treatment plant 1959-64.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,560 ft³/s (157 m³/s) Feb. 21, 1956, gage height, 12.68 ft (3.865 m), site and datum then in use; no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,360 ft³/s (66.8 m³/s) Feb. 9, gage height, 12.76 ft (3.889 m); no flow during most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.28	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	42	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	102	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	726	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	405	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	168	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	116	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	160	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	24	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	3.3	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.15	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	1746.73	.00	.00	.00	.00	.00	.00	.00
MEAN	.000	.000	.000	.000	62.4	.000	.000	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	726	.00	.00	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	3460	.00	.00	.00	.00	.00	.00	.00

CAL YR 1978 TOTAL 0.05 MEAN .000 MAX .05 MIN .00 AC-FT .10
WTR YR 1979 TOTAL 1746.73 MEAN 6.79 MAX 726 MIN .00 AC-FT 3460

LOCATION.--Lat 46°27'45", long 119°00'40", in SW¼Sec.2, T.11 N., R.30 E., Franklin County, Hydrologic Unit 17020016, on left bank 50 ft (15 m) upstream from Burlington Northern railroad bridge at Eltopia, and 8.2 mi (13.2 km) upstream from Esquatzel Diversion.

PERIOD OF RECORD.--January 1953 to September 1979 (discontinued).

REVISED RECORDS.--WSP 1933: Drainage area. WDR WA-75-1: 1974.

GAGE.--Water-stage recorder. Altitude of gage is 580 ft (177 m), from topographic map.

REMARKS.--Records poor. Considerable regulation by natural pondage in Esquatzel Coulee near Mesa 9 mi (14.5 km) upstream and irrigation waste water inflows. Upstream diversions for irrigation. Summer flow started in August 1971. Prior to August 1971 most of the runoff above station entered a sump maintained by the Bureau of Reclamation near Mesa. Since removal of the sump, there has been continuous flow at the station except for intermittent periods.

AVERAGE DISCHARGE.--18 years prior to removal of U.S. Bureau of Reclamation sump (water years 1953-70) 0.88 ft³/s (0.0249 m³/s), 638 acre-ft/yr (0.789 hm³/yr).
9 years (water years 1971-79), 18.7 ft³/s (0.530 m³/s), 13,550 acre-ft/yr (16.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,740 ft³/s (106 m³/s) Feb. 22, 1956, gage height, 18.23 ft (5.557 m); no flow most of time Jan. 1953 to September 1971; no flow at times in 1972, 1976-1978 water years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 956 ft³/s (27.1 m³/s) Feb. 10; gage height, 13.79 ft (4.203 m); minimum daily, 4.0 ft³/s (0.11 m³/s) Feb. 1.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	18	19	6.0	4.0	17	14	91	15	22	36	29
2	17	17	18	6.0	4.5	17	14	36	14	25	52	33
3	18	17	17	7.0	4.5	16	57	8.3	13	24	52	37
4	22	18	17	7.5	5.0	17	90	4.7	13	24	45	36
5	20	17	17	8.0	6.0	16	97	7.6	12	25	39	35
6	19	17	16	7.5	7.0	16	99	11	12	23	39	37
7	17	16	16	7.0	15	16	110	13	12	23	39	36
8	18	17	15	7.0	13	14	107	12	14	25	39	34
9	18	17	15	7.5	6.0	15	106	14	14	25	40	36
10	27	17	15	8.0	577	15	101	19	11	30	40	36
11	24	15	16	9.0	302	15	111	20	9.4	31	42	38
12	19	14	15	9.5	160	15	110	13	9.4	31	41	34
13	22	13	16	9.5	192	14	106	18	11	29	42	32
14	24	13	17	9.0	85	13	103	17	14	24	49	26
15	24	13	16	10	33	15	110	12	15	24	53	23
16	24	13	17	11	24	15	104	9.2	16	25	51	22
17	24	13	17	10	22	14	110	8.1	20	23	50	27
18	26	14	16	9.0	21	14	118	6.6	24	24	56	31
19	25	19	16	8.0	20	11	112	12	23	26	53	34
20	24	24	16	7.0	19	8.5	112	10	23	26	52	35
21	21	20	15	7.0	20	7.8	109	9.4	22	28	47	39
22	24	17	15	7.5	19	7.6	111	9.4	21	23	46	35
23	24	17	15	8.1	18	7.4	113	9.6	17	26	40	43
24	22	17	15	7.6	18	7.2	122	10	15	32	40	37
25	23	17	14	7.4	18	10	121	9.9	15	36	38	31
26	20	17	14	6.5	18	9.4	114	9.1	14	36	34	26
27	20	16	14	6.0	17	8.1	94	12	14	36	37	26
28	20	17	11	5.5	17	9.6	89	13	18	36	41	25
29	20	17	9.0	5.0	---	11	90	10	22	36	39	26
30	21	18	7.0	4.5	---	10	90	11	20	36	33	26
31	20	---	6.5	4.5	---	9.2	---	15	---	35	27	---
TOTAL	663	495	462.5	433.1	1719.0	396.8	2944	460.9	472.8	473	1331	945
MEAN	21.4	16.9	14.9	13.52	61.4	12.6	99.4	14.9	15.8	28.2	42.9	32.2
MAX	27	24	19	11	577	17	122	91	24	36	56	43
MIN	16	13	6.5	4.5	4.0	7.2	14	4.7	9.4	22	27	22
AC-FT	1320	992	917	462	3410	775	5840	914	938	1730	2640	1910

CAL YR 1978	TOTAL	4285.94	MEAN	11.7	MAX	36	MIN	.00	AC-FT	9500
WTR YR 1979	TOTAL	11010.10	MEAN	30.2	MAX	577	MIN	4.0	AC-FT	21840

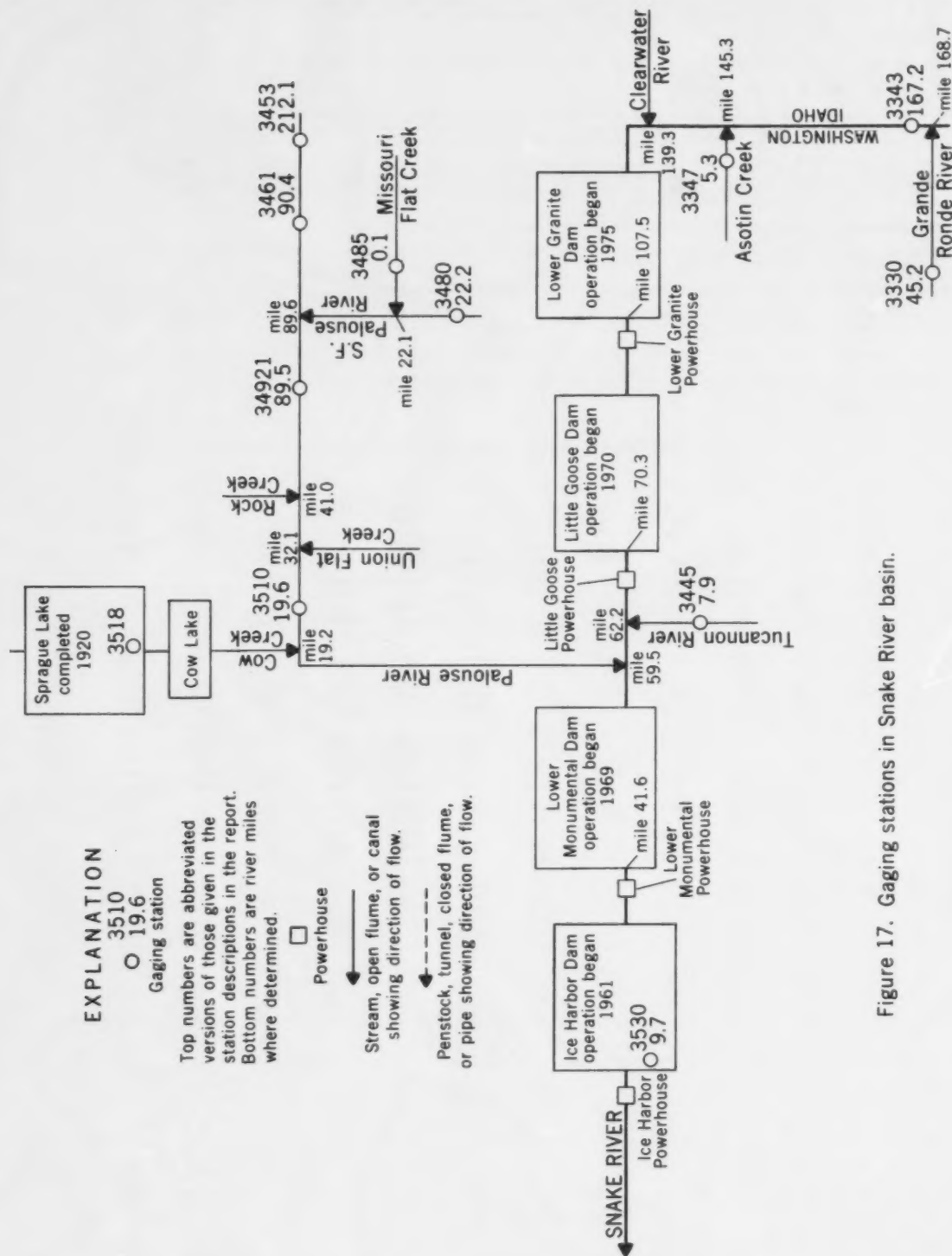


Figure 17. Gaging stations in Snake River basin.

LOCATION.--Lat 45°56'47", long 117°26'54", in NE 1/4 sec. 4, T.5 N., R.43 E., Wallows County, Hydrologic Unit 17060106, on left bank 500 ft (152 m) downstream from bridge at Troy, 600 ft (183 m) downstream from Venaha River, and at mile 45.2 (72.7 km).

DRAINAGE AREA.--3,275 mi^2 (8,482 km^2).

PERIOD OF RECORD.—August 1944 to current year. Monthly discharge only August 1944, published in WSP 1317.

REVISED RECORDS.--WSP 1397: 1946(M), 1948-50.

GAGE.—Water-stage recorder. Datum of gage is 1,585.98 ft (483.407 m) National Geodetic Vertical Datum of 1929. Aug. 17, 1944, to Sept. 30, 1949, nonrecording gage at site 500 ft (152 m) upstream at datum 10.85 ft (3.307 m) lower. Oct. 1, 1949, to Sept. 5, 1963, water-stage recorder at site 500 ft (152 m) upstream at datum 1.15 ft (0.351 m) higher.

REMARKS: --Records excellent except those for December, January, and period of no gage-height record, May 6-10, which are fair. Flow slightly regulated by Wallowa Lake (see station 13326000) and small reservoirs. Diversions for irrigation above station, chiefly in vicinity of La Grande, Enterprise, and Wallowa; one transbasin diversion from Big Sheep Creek and tributaries in Imasha River basin for irrigation in Wallowa Valley.

AVERAGE DISCHARGE.—35 years, 3,122 ft³/s (88.42 m³/s), 2,262,000 acre-ft/yr (2.79 km³/yr).

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 42,200 ft³/s (1,200 m³/s) Dec. 23, 1964, gage height, 11.25 ft (3.429 m); minimum, 344 ft³/s (9.74 m³/s) Aug. 19-21, 23, 1977.

EXTREMES FOR CURRENT YEAR.—Peak discharges above base of 9,000 ft³/s (255 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s)		Gage height (ft)		Date	Time	Discharge (ft ³ /s)		Gage height (ft)	
May 6	unknown	17,000	481	7.90a	2.408	May 24	1000	11,000	312	6.67	2.033

Minimum, 449 ft³/s (12.7 m³/s) Sept. 17, 18, 21, 22, but may have been less during period of ice effect.

a From floodmark.

DISCHARGE, STREAM (CUBIC FEET PER SECOND), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	966	746	1140	450	700	2740	5110	8800	5410	3290	686	771
2	954	758	1110	520	680	2380	4430	9200	5320	2870	662	759
3	954	770	1000	620	720	2080	4660	9600	5510	2540	628	747
4	941	782	940	720	740	2000	4470	10100	5020	2450	605	747
5	928	782	900	620	720	2180	4530	12200	5960	2510	594	759
6	916	770	830	600	740	3920	5060	15500	5680	2580	583	734
7	891	746	740	640	760	6570	6040	14000	5350	2580	594	698
8	891	746	780	720	800	7640	6540	12000	4680	2420	583	674
9	879	818	860	760	900	6470	6950	11000	4380	2230	583	639
10	879	830	980	720	1330	5640	6760	9800	4440	2060	572	628
11	842	677	1100	760	1760	5260	6320	9000	4840	1920	561	605
12	830	570	1000	780	2700	5350	5880	8410	5410	1760	551	583
13	818	712	854	780	7290	5490	5850	8090	5680	1620	572	561
14	806	643	806	740	6630	5490	5790	8090	5410	1510	662	530
15	806	590	891	780	4310	5700	5880	8620	4740	1390	889	509
16	806	677	866	770	3400	6220	6040	9730	4380	1320	957	449
17	806	770	866	760	2810	6100	6320	9510	4650	1240	916	459
18	794	758	916	740	2610	5580	6350	9210	4500	1180	929	459
19	782	770	879	720	2570	5170	5940	9170	4230	1100	889	449
20	770	782	866	780	2380	5030	5580	8910	3940	1030	862	449
21	758	746	916	760	2180	4970	5290	8870	3910	943	849	459
22	746	758	928	740	2040	4870	5350	9170	4080	902	810	459
23	758	758	928	720	1910	4770	5040	10000	4060	869	771	459
24	758	758	992	740	1880	4890	4570	10800	4080	797	759	449
25	746	758	1180	740	1960	5260	4820	10500	4380	759	747	449
26	746	758	1040	720	2640	5170	6890	10300	4650	722	759	499
27	746	735	903	700	2550	5460	7250	10300	4650	686	771	540
28	746	758	760	720	3040	6570	7880	8910	4290	674	747	510
29	735	806	620	660	---	7120	8200	7500	4080	674	747	510
30	758	954	500	620	---	6350	8600	6410	3910	686	747	510
31	758	---	460	640	---	5670	---	5720	---	710	759	---
TOTAL	25514	22486	27571	21760	63280	156070	183690	299420	142620	48002	22344	17233
MEAN	823	750	889	702	2260	5099	8123	9659	4754	1548	721	574
MAX	966	954	1180	780	7290	7640	8608	15500	6020	3290	957	771
MIN	735	570	460	450	680	2000	4470	3910	4060	674	551	459
AC-FT	50610	44600	54690	43160	125500	313500	384300	593900	282900	95210	44320	36180
CAL YR 1978	TOTAL	1113590	MEAN	3051	MAX	11480	MIN	480	AC-FT	2209000		
WTH YR 1979	TOTAL	1031990	MEAN	2827	MAX	15500	MIN	450	AC-FT	2047000		

SNAKE RIVER BASIN

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13354300 SNAKE RIVER NEAR ANATONE, WA

LOCATION.--Lat 46°05'50", long 116°58'36", in SE¼SE¼NE¼ sec.12, T.7 N., R.46 E., Asotin County, Hydrologic Unit 17060103, on left bank 1.2 mi (1.9 km) downstream from Grande Ronde River, 7.8 mi (12.6 km) east of Anatone, 22 mi (35.4 km) south of Clarkston and at mile 167.2 (269.0 km).

DRAINAGE AREA.--92,960 mi² (241,000 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1958 to current year.

REVISED RECORDS.--WDR WA-76-2: 1974 and 1975.

GAGE.--Water-stage recorder. Datum of gage is 806.78 ft (245.907 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diversions above station for irrigation of about 4,090,000 acres (1,660 km²) of which about 750,000 acres (304 km²) are by withdrawal from ground water. Flow regulated by many reservoirs above station with a total usable capacity of more than 10,000,000 acre-feet (12,300 km³), the most effective of which is Brownlee Reservoir 106.3 mi (171.0 km) upstream (see sta 13289700). Diurnal fluctuations caused by Hells Canyon powerplant.

AVERAGE DISCHARGE.--21 years, 35,960 ft³/s (1,018 m³/s), 26,053,000 acre-ft/yr (32,120 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 195,000 ft³/s (5,520 m³/s), revised, June 18, 1974, gage height, 24.45 ft (7.452 m); minimum, 6,010 ft³/s (170 m³/s) Sept. 2, 1958, gage height, 1.29 ft (0.393 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 82,000 ft³/s (2,322 m³/s) May 25, gage height, 13.22 ft (4.029 m); minimum, 8,980 ft³/s (254 m³/s) Sept. 17, gage height, 2.41 ft (0.735 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19700	20800	22600	25300	25600	29900	44400	47300	52500	30800	17000	13800
2	19700	17300	27000	21500	25000	30700	42900	50000	46000	33300	17500	13700
3	20800	19000	26300	24200	20000	30800	40900	51100	45800	31600	16600	13600
4	19900	23000	26000	22300	18800	29900	37600	50700	49000	26500	15100	13400
5	19500	23000	26600	22700	20500	29500	36900	54100	60100	23500	13100	13300
6	19400	22700	28000	25900	24100	29800	34700	58500	58500	25900	10700	13100
7	20700	20800	30500	26300	24400	34800	35400	54200	52100	27900	13200	11800
8	20100	22400	29500	25800	23100	38400	35500	52500	48200	23500	14700	13700
9	18000	22300	23200	22200	26900	39100	38200	49000	43500	22200	13000	13400
10	19200	23900	18900	20300	26400	40100	40300	46500	40400	25600	11800	10500
11	20100	23700	25600	20000	23000	29400	39700	43300	43700	24900	12900	15500
12	20200	21400	25400	17100	27900	37000	40500	41500	49900	23700	12800	17200
13	20600	22200	26400	21200	36600	34300	42800	40000	52000	25200	10300	16700
14	19100	24900	28500	18900	39200	35400	42900	42300	49500	22100	12100	14300
15	17100	26000	25600	23800	34700	37700	39800	45800	49500	17400	14000	15900
16	16900	23500	27800	23700	33400	37100	38800	51300	44900	17400	14400	13500
17	18800	19700	22200	26700	29100	44200	43000	57000	40800	22900	13300	9830
18	19300	19800	22400	27700	29400	41000	44300	57800	37500	25200	14500	14700
19	18200	18400	25500	29400	27900	41700	43400	57000	48700	21900	14400	18300
20	18800	19400	25700	27700	28300	43700	39500	57200	40100	20600	11700	20800
21	22200	21700	23100	25700	27900	44100	38300	59100	37900	18000	12900	18300
22	24100	25000	23200	26600	29500	41600	37000	62000	38800	15500	14100	17900
23	21400	22200	20800	27800	30200	40200	36100	67700	35800	15400	15200	15800
24	19100	19000	18000	27100	30400	39900	36400	73600	32300	15400	12900	10300
25	17900	18300	18400	26600	29600	42300	37200	78600	32600	15700	15200	13000
26	18100	19900	22700	26200	30800	40600	37900	77000	42100	16100	14000	15400
27	17100	21300	23300	25600	30800	40600	39800	77000	42800	19600	11400	12600
28	18100	23700	26300	23400	30300	45200	43700	73100	40400	17100	14200	11600
29	17200	22600	27800	26600	---	45200	46400	68600	40100	14300	13800	13600
30	15900	20600	25800	28700	---	47000	49800	63100	34900	13800	13800	14200
31	20000	---	26600	28300	---	45700	---	56900	---	16400	13800	---
TOTAL	597200	648300	769700	764300	783800	1186900	1204100	1763800	1322400	669400	424400	429730
MEAN	19260	21610	24830	24650	27990	38290	40140	56900	44080	21590	13690	14320
MAX	24100	26000	30500	28700	39200	47000	49800	78600	60100	33300	17500	20900
MIN	15900	17300	18000	17100	18800	29400	34700	40000	32300	13800	10300	9830
AC-FT	1185000	1286000	1527000	1316000	1555000	2354000	2388000	3498000	2623000	1328000	841800	852400
CAL YR 1978 TOTAL	13292700			MEAN 36420	MAX 93000	MIN 15400	AC-FT 26370000					
WTR YR 1979 TOTAL	10584030			MEAN 28940	MAX 78600	MIN 9830	AC-FT 20950000					

SNAKE RIVER BASIN

13534300 SNAKE RIVER NEAR ANATONE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: October 1959 to current year.

INSTRUMENTATION.--Temperature recorder since October 1959.

COOPERATION.--Temperature records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum (1959-68, 1970-78), 25°C Aug. 11, 1960, Aug. 13, 1963, July 18, 1973; minimum, 0.0°C several days during winter months.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum, 23.5°C July 20-23, Aug. 2, 11; minimum, 0.0°C Jan. 30 to Feb. 4, Feb. 12-13.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, AIR (DEG C)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT. 1978										
18...	1000	17200	301	8.2	18.0	13.5	1	--	10.0	99
NOV										
16...	0945	20400	419	7.3	8.5	7.0	0	--	11.3	96
DEC										
13...	0915	24700	411	7.2	-4.0	3.5	1	--	12.2	95
JAN. 1979										
17...	0945	24200	414	8.7	1.5	1.0	1	--	13.6	101
FEB										
14...	1000	37200	301	6.5	7.0	2.0	52	--	10.0	72
MAR										
22...	0900	40900	319	8.1	10.5	7.0	7	--	10.4	88
APR										
19...	1000	43200	276	8.3	14.0	9.0	5	--	11.4	100
MAY										
24...	0930	75000	116	7.9	21.5	14.0	--	10	10.7	106
JUN										
28...	1045	38600	201	8.2	30.5	19.0	--	2.5	9.4	103
JUL										
26...	0930	16600	264	8.2	32.0	23.0	--	1.4	10.1	119
AUG										
23...	0900	17200	339	8.2	22.5	22.0	--	1.4	8.6	101
SEP										
13...	0815	18800	390	8.2	17.0	19.5	--	1.8	9.5	103

DATE	OXYGEN DEMAND, CHEM- ICAL (MGL) (HIGH LEVEL)	COLI- FORM, FECAL, 0.7 UM-WF (COLS./ 100 ML)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)
OCT. 1978										
18...	27	K1	160	0	131	1.6	18	216	--	.29
NOV										
16...	1	K2	180	0	148	14	21	256	265	.35
DEC										
13...	--	K3	180	0	148	18	21	272	--	.37
JAN. 1979										
17...	15	K1	--	19	--	--	21	258	--	--
FEB										
14...	34	K300	160	0	131	81	20	182	--	.25
MAR										
22...	11	K4	140	0	115	1.8	24	203	--	.28
APR										
19...	12	K10	120	0	98	1.0	24	183	--	.25
MAY										
24...	19	K140	49	0	40	1.0	12	69	63	.09
JUN										
28...	8	K8	76	0	62	.8	10	115	--	.16
JUL										
26...	7	K11	100	0	82	1.0	11	158	--	.21
AUG										
23...	--	33	54	0	44	.5	15	145	159	.27
SEP										
13...	10	K5	170	0	139	1.7	21	250	--	.34

K.--Results based upon colony counts outside the ideal range.

SNAKE RIVER BASIN

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13334300 SNAKE RIVER NEAR ANATONE, WA--Continued

WATER QUALITY DATA

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)
OCT , 1978										
10...	10000	.01	.00	.97	.97	.98	4.3	.050	4	4
NOV										
16...	14100	.11	.01	.34	.35	.46	2.0	.060	6	15
DEC										
13...	10100	.73	.06	.38	.44	1.2	5.2	.060	5	7
JAN , 1979										
17...	16900	.97	.04	.22	.26	1.2	5.4	.050	4	7
FEB										
14...	10300	1.1	.12	.85	.97	2.1	9.2	.310	3	11
MAR										
22...	22400	.87	.06	.31	.37	1.2	5.5	.110	3	3
APR										
19...	21300	.56	.05	.20	.25	.01	3.6	.070	4	0
MAY										
24...	14000	.08	.03	.36	.39	.47	2.1	.050	3	3
JUN										
28...	12000	.09	.01	.38	.39	.48	2.1	.030	5	1
JUL										
26...	7000	.15	.01	.28	.29	.44	1.9	.020	5	0
AUG										
23...	9060	.24	.00	.36	.36	.60	2.7	.040	3	0
SEP										
13...	12700	.33	.03	.77	.80	1.1	5.0	.050	6	0

DATE	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	OIL AND GREASE, TOTAL RECOV- GRAVI- METRIC (MG/L)
OCT , 1978									
10...	0	10	140	130	.0	0	20	2.4	7
NOV									
16...	10	18	150	220	.0	1	20	2.3	0
DEC									
13...	10	8	120	51	.0	1	20	1.9	0
JAN , 1979									
17...	10	10	40	63	.0	0	10	1.9	0
FEB									
14...	0	30	5400	75	.1	1	30	9.9	1
MAR									
22...	0	24	630	30	.1	1	40	6.1	0
APR									
19...	0	11	460	16	.0	0	20	--	0
MAY									
24...	10	27	1000	240	.2	1	50	4.6	0
JUN									
28...	0	9	250	15	.1	0	10	2.6	0
JUL									
26...	0	17	120	13	.1	0	30	3.4	0
AUG									
23...	20	10	170	6	.2	0	10	4.0	0
SEP									
13...	20	21	150	17	.1	1	10	8.6	0

DATE	TIME	HARD- NESS (MG/L AS CaCO3)	HARD- NESS, NONCAR- BONATE (MG/L CaCO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV , 1978											
10...	0945	150	2	36	15	33	31	1.2	4.1	53	14
FEB , 1979											
14...	1000	--	--	--	--	--	--	--	3.8	31	14
MAY											
24...	0930	41	1	11	3.3	6.5	25	.4	1.4	1.1	3.4
AUG											
23...	0900	110	66	26	9.8	25	33	1.1	3.3	48	13

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	4.5	0.0	0.0	3.5	3.0	3.0	8.0	7.5	7.5	12.0	11.0	11.5
2	4.5	0.0	0.0	3.5	2.5	3.0	8.0	7.5	7.5	12.0	11.0	11.5
3	4.5	0.0	0.0	3.0	2.5	2.5	8.0	7.5	8.0	12.0	11.0	11.5
4	4.5	0.0	0.5	3.5	2.5	3.0	8.5	7.5	8.0	12.0	11.0	12.0
5	1.0	0.5	1.0	4.0	3.0	3.5	9.5	8.5	9.0	11.0	9.5	10.5
6	1.0	0.5	1.0	5.5	4.0	4.5	9.5	9.0	9.5	9.5	9.0	9.0
7	1.0	0.5	1.0	6.0	5.5	5.5	9.5	8.5	9.0	9.0	8.5	8.5
8	1.0	1.0	1.0	5.5	4.5	5.0	9.0	8.5	8.5	8.5	8.0	8.5
9	1.0	0.5	1.0	4.5	4.0	4.5	9.0	8.5	8.5	9.5	8.5	9.0
10	1.0	1.0	1.0	5.0	3.5	4.5	8.5	8.0	8.0	10.0	9.0	9.5
11	1.0	1.0	1.0	6.0	4.5	5.0	8.5	7.5	8.0	11.0	9.5	10.5
12	1.0	0.0	1.0	6.0	5.0	5.5	9.0	8.0	8.5	12.0	10.5	11.0
13	1.0	0.0	0.5	6.5	5.0	5.5	9.5	8.5	9.0	13.0	11.5	12.0
14	2.5	1.0	1.5	6.0	5.0	5.5	9.5	8.5	9.0	13.5	12.0	12.5
15	2.5	2.0	2.0	6.0	5.5	5.5	10.0	9.0	9.5	14.0	12.5	13.5
16	2.0	2.0	2.0	6.0	5.5	6.0	10.0	9.5	10.0	13.5	12.5	13.0
17	3.0	2.0	2.5	6.0	5.0	5.5	10.5	9.5	10.0	12.5	11.5	12.0
18	3.0	2.5	3.0	6.5	5.5	6.0	9.5	8.5	9.0	13.0	11.5	12.5
19	3.5	2.5	3.0	6.5	5.5	6.0	9.0	8.5	9.0	13.0	12.0	12.5
20	3.0	2.5	2.5	7.0	6.0	6.5	10.5	9.0	9.5	13.5	12.0	12.5
21	3.0	2.5	2.5	7.5	6.5	7.0	10.5	9.0	10.0	13.5	12.0	13.0
22	3.0	2.5	2.5	8.0	7.0	7.5	11.0	10.0	10.5	14.0	13.0	13.5
23	3.0	2.5	2.5	8.0	7.0	7.5	10.5	10.0	10.0	14.0	12.0	13.0
24	3.0	2.5	3.0	8.5	7.5	8.0	10.5	10.0	10.0	12.5	12.0	12.0
25	4.0	3.0	3.5	8.0	7.5	8.0	11.0	10.0	10.0	13.0	12.0	12.5
26	4.0	3.5	3.5	8.0	7.5	8.0	11.5	10.0	10.5	13.5	12.5	13.0
27	4.0	3.5	3.5	9.0	7.5	8.0	12.0	11.0	11.5	13.0	12.0	12.5
28	4.0	3.0	3.5	8.0	7.5	8.0	12.5	11.0	12.0	12.0	11.0	11.5
29	---	---	---	8.0	7.5	7.5	12.5	11.0	11.5	11.5	10.5	11.0
30	---	---	---	8.0	7.0	7.5	11.5	10.5	11.0	12.0	10.5	11.0
31	---	---	---	8.0	7.5	7.5	---	---	---	12.5	11.5	12.0
MONTH	4.0	0.0	2.0	8.5	2.5	6.0	12.5	7.5	9.5	14.0	8.0	11.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	13.5	12.0	13.0	17.5	17.0	17.0	23.0	22.0	22.5	21.5	20.5	21.0
2	14.5	13.0	14.0	17.5	16.5	17.0	23.5	21.5	22.5	22.0	21.0	21.5
3	15.5	14.0	14.5	18.5	17.0	17.5	23.0	21.5	22.5	21.5	20.5	21.0
4	15.0	14.0	14.5	19.0	18.0	18.5	22.5	21.5	22.0	20.5	20.0	20.5
5	14.5	14.0	14.5	19.5	18.5	19.0	22.5	21.5	22.0	21.0	19.5	20.0
6	14.5	13.0	13.5	20.0	19.0	19.5	23.0	21.5	22.0	21.0	20.0	20.5
7	13.0	12.0	12.5	20.5	19.0	20.0	23.0	21.5	22.0	22.0	20.5	21.0
8	13.5	12.0	13.0	21.0	19.5	20.0	23.0	21.5	22.0	22.0	21.0	21.0
9	14.5	13.0	14.0	21.0	20.0	20.5	23.0	21.5	22.0	21.0	20.5	21.0
10	15.5	14.0	15.0	21.0	19.5	20.0	23.0	21.5	22.5	21.0	19.5	20.0
11	16.5	14.5	15.5	21.0	19.5	20.0	23.5	22.0	22.5	20.5	20.0	20.0
12	17.0	15.5	16.5	20.5	19.5	20.0	23.0	22.0	22.5	20.5	19.5	20.0
13	16.5	15.0	16.0	21.0	19.5	20.0	22.5	21.5	22.0	20.5	19.5	20.0
14	15.5	14.5	15.0	21.5	19.5	20.5	21.5	21.0	21.5	21.0	19.5	20.0
15	16.0	13.5	15.0	21.5	20.0	21.0	22.0	21.0	21.5	21.0	20.0	20.5
16	15.5	15.0	15.0	22.0	20.5	21.5	22.5	21.5	22.0	21.0	20.0	20.5
17	14.5	13.0	14.0	22.5	21.0	21.5	22.5	21.5	22.0	21.0	20.0	20.5
18	13.0	12.5	12.5	22.5	21.5	22.0	22.5	21.5	21.5	21.0	20.0	20.5
19	14.0	13.0	13.5	23.0	21.5	22.5	22.5	21.5	22.0	21.0	20.0	20.5
20	15.0	13.5	14.0	23.5	22.0	22.5	22.5	21.5	22.0	21.0	20.5	20.5
21	16.5	14.5	15.5	23.5	22.5	23.0	23.0	21.5	22.0	21.0	20.5	20.5
22	17.0	15.5	16.5	23.5	22.5	23.0	23.0	21.5	22.0	21.0	20.0	20.5
23	17.5	15.5	16.5	23.5	22.0	22.5	22.5	21.5	22.0	20.5	19.5	20.0
24	18.0	16.0	17.0	23.0	22.0	22.5	22.5	21.5	22.0	20.0	19.0	19.5
25	18.5	16.5	17.5	23.0	22.0	22.5	22.5	21.5	22.0	19.5	19.0	19.0
26	19.0	17.5	18.0	23.0	22.0	22.5	22.0	21.5	22.0	20.0	18.5	19.5
27	19.0	18.0	18.5	22.5	21.5	22.0	22.0	21.0	21.5	20.0	19.0	19.5
28	19.5	18.0	19.0	23.0	22.0	22.0	22.0	20.5	21.0	19.5	19.0	19.5
29	19.0	18.5	19.0	23.0	21.5	22.0	22.5	21.0	21.5	19.5	18.5	19.0
30	19.0	17.5	18.0	23.0	21.5	22.0	22.0	21.5	22.0	19.0	18.5	19.0
31	---	---	---	23.0	21.5	22.5	22.0	21.0	21.5	---	---	---
MONTH	19.5	12.0	15.5	23.5	18.5	21.0	23.5	20.5	22.0	22.0	18.5	20.0

YEAR	23.5	0	11.5
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SNAKE RIVER BASIN

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13334300 SNAKE RIVER NEAR ANATONE, WA--Continued

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SEDI- MENT- SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	
NOV. 1978								
16...	0945	26400	6	330	--	--	--	
DEC								
13...	0915	24700	15	1000	--	--	--	
FEB. 1979								
14...	1000	37200	142	14300	48	50	69	
MAR								
22...	0900	40900	11	1220	--	--	--	
APR								
19...	1000	43200	12	1400	--	--	--	
MAY								
02...	1410	47500	52	6950	32	38	48	
10...	1115	45500	--	--	30	30	50	
15...	1400	41700	20	2250	--	--	--	
22...	1145	60600	54	8840	25	30	39	
24...	0930	75000	82	16600	10	22	31	
JUN								
05...	1130	56100	20	3030	--	--	--	
07...	1500	48900	17	2250	--	--	--	
DATE		SED. SUSP. FALL DIAM. % FINER THAN .010 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM
NOV. 1978								
16...	--	--	93	170	--	--	--	--
DEC								
13...	--	--	96	94	100	--	--	--
FEB. 1979								
14...	00	69	93	98	100	--	--	--
MAR								
22...	--	--	73	82	93	100	--	--
APR								
19...	--	--	81	90	100	--	--	--
MAY								
02...	60	73	80	91	96	99	100	100
10...	65	80	87	94	98	100	--	--
15...	--	--	88	97	100	--	--	--
22...	49	60	67	80	91	99	100	100
24...	40	52	61	79	93	990	100	100
JUN								
05...	--	--	61	74	91	98	100	100
07...	--	--	68	82	92	100	--	--

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER												
1	17.0	16.5	16.5	11.0	10.5	11.0	6.5	6.0	6.5	2.5	1.5	2.0
2	16.5	16.0	16.5	10.5	10.0	10.5	6.5	6.0	6.5	2.5	2.0	2.0
3	16.5	16.0	16.0	11.0	10.0	10.5	6.5	5.5	6.0	2.0	2.0	2.0
4	16.0	15.5	16.0	12.0	11.0	11.5	6.0	5.5	6.0	2.0	1.0	1.5
5	16.0	15.5	15.5	11.0	10.5	11.0	6.0	5.0	5.5	1.0	.5	1.0
6	16.0	15.0	15.5	10.5	10.0	10.5	5.0	4.5	5.0	1.0	.5	.5
7	15.5	15.0	15.5	10.5	10.0	10.0	5.0	4.5	4.5	1.0	.5	.5
8	16.0	15.5	15.5	11.0	10.5	11.0	5.0	4.5	4.5	1.0	.5	.5
9	15.5	15.0	15.5	10.5	9.5	10.0	5.0	4.0	4.5	1.0	.5	1.0
10	15.5	15.0	15.5	10.0	9.0	9.0	4.0	3.5	4.0	1.0	.5	1.0
11	16.0	15.0	15.5	8.0	7.5	8.0	4.5	4.0	4.5	1.0	1.0	1.0
12	15.5	15.0	15.0	8.0	7.5	8.0	4.5	4.0	4.5	1.0	1.0	1.0
13	15.0	14.5	14.5	8.5	8.0	8.0	4.0	3.5	4.0	1.0	1.0	1.0
14	14.5	14.0	14.5	8.0	7.5	8.0	4.5	4.0	4.0	1.0	1.0	1.0
15	14.5	14.0	14.0	8.0	7.5	7.5	4.0	3.5	4.0	1.5	1.0	1.0
16	14.0	13.5	13.5	8.0	7.5	7.5	4.0	3.5	4.0	1.5	1.0	1.5
17	14.5	13.5	14.0	7.5	7.0	7.0	4.0	3.0	3.5	1.5	1.0	1.5
18	14.5	14.0	14.0	7.0	7.0	7.0	3.5	3.0	3.5	1.5	1.0	1.0
19	14.0	13.5	14.0	7.0	6.0	6.5	4.0	3.5	4.0	1.5	1.0	1.0
20	14.0	13.5	14.0	6.0	6.0	6.0	4.0	3.5	4.0	1.5	1.0	1.0
21	14.5	14.0	14.0	6.5	6.0	6.0	4.0	3.5	4.0	1.5	1.0	1.0
22	14.0	13.5	14.0	7.0	6.5	6.5	4.0	4.0	4.0	1.5	1.0	1.0
23	13.5	13.0	13.5	7.0	6.5	7.0	4.0	3.5	4.0	1.0	.5	1.0
24	13.5	12.5	13.0	7.0	6.5	6.5	4.5	3.5	4.0	1.0	.5	1.0
25	12.5	12.0	12.5	6.5	6.5	6.5	3.5	3.0	3.5	1.0	1.0	1.0
26	12.0	11.5	12.0	6.5	6.5	6.5	3.5	3.0	3.5	1.0	.5	1.0
27	11.5	11.5	11.5	7.0	6.5	6.5	3.5	3.0	3.5	1.0	.5	.5
28	12.0	11.5	11.5	7.0	6.5	7.0	3.5	3.0	3.5	1.0	.5	.5
29	12.0	11.5	11.5	7.0	6.5	7.0	3.5	2.5	3.0	1.0	.5	.5
30	11.0	10.5	11.0	7.0	5.5	6.5	3.0	2.0	3.0	.5	.0	.5
31	11.0	10.5	11.0	---	---	---	2.5	2.5	2.5	.5	.0	.0
MONTH	17.0	10.5	14.0	12.0	5.5	9.0	6.5	2.0	4.0	2.5	.0	1.0

LOCATION - Lat 46°19'35", long 117°09'06", in SWSEK sec.22, T.10 N., R.45 E., Asotin County, Hydrologic Unit 17060103, on left bank 0.3 mi (0.5 km) downstream from Kearney Gulch, 2.5 mi (4.0 km) upstream from George Creek, 5.0 mi (8.0 km) west of Asotin, and at mile 5.3 (8.5 km).

DRAINAGE AREA.--170 mi² (440 km²).

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,090 ft (332 m), from topographic map.

REMARKS.--Records good except those for Dec. 27 to Feb. 9, which are fair. Several diversions for irrigation. Prior to Nov. 20, 1959, at a point 3.3 mi (5.3 km) upstream, the city of Clarkston diverted about 30 ft³/s (0.85 m³/s) for municipal use and irrigation. Natural low flows nearly equivalent to those of former station 3.3 mi (5.3 km) upstream.

AVERAGE DISCHARGE.--20 years, 76.9 ft³/s (2.178 m³/s), 55,710 acre-ft/yr (68.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge about 3,700 ft³/s (105 m³/s) Jan. 15, 1974; maximum gauge height, 8.07 ft (2.460 m) Jan. 14, 1974; minimum discharge, 13 ft³/s (0.37 m³/s) Jan. 11, 1963, result of freezeup; minimum gauge height, 0.69 ft/s (0.210 m/s) Aug. 14, 1951, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 220 ft³/s (6.23 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 9	1515	*758	21.5	May 16	0900	230	6.51
Feb. 13	0130	648	18.4				2.01
May 6	0445	406	11.5	May 23	1945	241	0.83
							2.05
							0.613
							0.625

Minimum daily discharge, 24 ft³/s (0.68 m³/s) Jan. 5-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	40	47	30	28	78	85	180	108			
2	38	40	42	28	27	73	80	193	106	51	28	42
3	38	40	41	27	30	69	85	196	110	48	29	42
4	38	41	52	25	35	66	85	225	112	47	28	42
5	38	40	58	24	45	71	80	332	106	50	28	42
6	38	41	46	24	70	100	85	354	106	47	28	41
7	38	41	42	24	66	153	100	276	100	47	28	41
8	38	41	38	25	64	165	110	219	92	44	27	41
9	38	42	36	27	258	134	115	185	87	42	27	42
10	37	41	42	32	106	112	110	165	85	42	27	41
11	37	42	47	47	125	100	100	153	83	42	27	40
12	37	38	44	50	162	98	94	148	81	42	27	41
13	37	40	41	54	388	96	92	155	78	41	29	40
14	38	40	41	50	186	94	89	165	74	40	33	40
15	38	41	42	48	129	102	87	188	71	38	33	40
16	38	38	40	47	104	81	85	217	69	37	33	38
17	40	38	41	46	91	78	96	211	80	37	53	38
18	38	38	42	43	83	76	100	188	83	36	61	37
19	38	40	41	43	80	74	98	190	71	36	47	36
20	38	40	40	46	73	78	91	185	66	36	48	37
21	40	40	40	50	71	78	87	185	63	36	42	37
22	40	40	40	48	68	83	85	201	61	35	44	37
23	40	40	41	45	64	92	94	228	59	35	40	38
24	40	40	42	45	63	92	108	225	56	33	47	38
25	40	40	42	45	66	88	108	203	54	31	41	38
26	40	40	41	45	78	89	108	198	53	31	41	40
27	40	40	39	45	83	106	112	188	54	32	51	40
28	40	43	36	40	81	115	128	160	51	35	54	40
29	40	42	33	35	---	110	153	137	50	35	45	40
30	40	47	30	33	---	100	175	121	50	33	45	40
31	40	---	30	29	---	90	---	112	---	32	45	---
TOTAL	1198	1214	1269	1200	2725	2933	3025	6083	2319	1224	1161	1193
MEAN	38.6	40.5	40.9	38.7	97.3	94.5	101	196	77.3	39.5	37.5	39.6
MAX	40	47	52	54	388	165	175	354	112	53	61	44
MIN	37	38	30	24	27	68	80	112	50	31	27	36
AC-FT	2380	2410	2520	2380	5410	5820	6080	12070	4680	2430	2300	2370
CAL YR 1978	TOTAL	26113	MEAN 71.5	MAX 253	MIN 30	AC-FT	51800					
WTR YR 1979	TOTAL	25544	MEAN 70.0	MAX 388	MIN 24	AC-FT	50670					

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LOCATION.--Lat 46°40'04", long 117°26'38", in NE¼SE¼ sec.30, T.14 N., R.43 E., Garfield County, Hydrologic Unit 17060107, 1.0 mi (1.6 km) below Lower Granite Dam, 16 mi (25.7 km) northeast of Pomeroy, and at mile 106.5 (171.4 km).

PERIOD OF RECORD.--October 1978 to current year. Chemical analyses July 1975 to September 1978.

REMARKS.--Records good. Discharges for Oct. 19 to Nov. 12, Feb. 4-14, Feb. 25 to Mar. 13, and May 8 to Sept. 1 were supplied by Lower Granite Dam powerplant. Regulation by Lower Granite Dam 1.0 mi (1.6 km) upstream and by other storage reservoirs above station. Diversions above station for irrigation of over 4,090,000 acres (16,600 km²).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 143,000 ft³/s (4,050 m³/s) May 25. Minimum daily discharge, 9,600 ft³/s (272 m³/s) Aug. 19.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13200	16100	32500	33400	42500	35900	58900	05000	74100	32200	24000	22500
2	26000	30200	37500	39000	38000	40400	54900	73200	78600	48100	17800	16900
3	23300	23200	37200	35300	28000	44700	55100	88200	84100	56300	27900	12200
4	27100	21400	42000	36200	15500	30200	47700	81700	84900	32300	15100	22900
5	25300	27800	40900	35900	28500	40400	41000	83800	103000	44800	15800	22900
6	21900	30300	40100	49600	28300	46100	47100	119000	97800	37500	21400	14400
7	21500	26700	41300	38100	30000	54400	42400	95200	94100	34100	15300	22100
8	28200	25700	40400	45100	28300	63200	51900	97200	71500	32200	22100	20500
9	20500	25000	35200	36300	34100	59800	65200	92200	76800	36500	25800	10700
10	24600	29100	41100	28200	28000	59200	60700	85900	69700	39700	16300	17900
11	27800	25400	36400	31600	24500	42100	53100	81100	71400	34600	13600	22600
12	28600	13500	43600	27400	40300	55200	60800	72800	90400	28900	11900	21300
13	23100	34400	36700	27600	46000	52000	55100	74900	68800	32100	17200	28200
14	21800	27800	38900	19400	49700	42200	48200	76800	84100	32000	14800	18700
15	19300	27100	39600	31300	50500	53300	54600	89100	79300	21700	14400	20900
16	15300	30400	37100	35800	44500	62000	49300	85000	73400	27200	22400	10200
17	22000	29200	33800	35700	35100	62200	55500	104000	70900	33100	24300	26300
18	28100	21700	38800	35300	28000	54100	67700	100000	75500	32800	19800	15600
19	24600	30900	36500	40300	33400	59100	68800	108000	67500	29500	9600	21300
20	17800	33000	39100	27400	40300	65200	57100	104000	67700	32200	17500	31200
21	27200	31400	36100	22300	30300	63200	47900	99300	58300	23000	24100	25600
22	18900	36400	37800	35600	39900	60400	52100	101000	48200	11100	16800	18800
23	24200	28800	34700	35400	36700	63100	51000	114000	55800	30500	17900	25100
24	35000	35000	31000	35300	35700	39000	52300	133000	46100	22400	20100	19700
25	20300	34900	29100	37500	26400	52400	68000	143000	63800	21100	22900	16400
26	21100	24800	35900	35300	39400	56200	60200	135000	63600	21900	16600	20600
27	19500	36300	39900	36900	45600	55500	57300	136000	64100	25900	24200	13400
28	14900	34600	35200	27400	41100	58200	58800	120000	62800	21300	19300	18300
29	17400	37700	42300	44600	---	61500	69000	113000	53700	13100	19500	15900
30	24700	35500	35300	39900	---	53400	79300	104000	55600	20800	20000	15100
31	23300	---	35400	386								

TUCANNON RIVER BASIN

13344500 TUCANNON RIVER NEAR STARBUCK, WA

LOCATION.--Lat 46°30'17", long 118°03'55", in NE¼SW¼ sec.21, T.12 N., R.38 E., Columbia County, Hydrologic Unit 17060107, on right bank 180 ft (55 m) downstream from county road bridge, 0.5 mi (0.8 km) downstream from Smith Hollow, 3.0 mi (4.8 km) east of Starbuck, 3.3 mi (5.3 km) downstream from Pataha Creek, and at mile 7.9 (12.7 km).

DRAINAGE AREA.--431 mi² (1,116 km²).

PERIOD OF RECORD.--October 1914 to September 1917, August 1928 to September 1931, October 1958 to current year. Monthly discharge only for October and November 1914, published in WSP 1317. Water temperatures and sediment records October 1962 to June 1970.

REVISED RECORDS.--WSP 1347: 1930.

GAGE.--Water-stage recorder. Altitude of gage is 730 ft (223 m), from topographic map. Nov. 8, 1914, to Sept. 30, 1917, nonrecording gage at site 2.8 mi (4.5 km) upstream at different datum. Aug. 9, 1928, to Sept. 30, 1931, nonrecording gages at site 2.5 mi (4.0 km) upstream at various datums.

REMARKS.--Records good except those for period Dec. 28 to Feb. 4 which are fair. Many small diversions for irrigation above the station.

AVERAGE DISCHARGE.--27 years (water years, 1915-17, 1929-31, 1959-79), 176 ft³/s (4.984 m³/s), 127,500 acre-ft/yr (157 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,980 ft³/s (226 m³/s) Dec. 22, 1964, gage height, 9.84 ft (2.999 m), from rating curve extended above 2,500 ft³/s (70.8 m³/s) on basis of slope-area measurement of peak flow; minimum, 15 ft³/s (0.42 m³/s) July 11, 12, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s (19.8 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s)	Discharge (m ³ /s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft ³ /s)	Discharge (m ³ /s)	Gage height (ft)	Gage height (m)
Feb. 5	1900	1,530	43.3	3.65	1.113	Feb. 13	0400	1,590	45.0	3.56	1.085
Feb. 7	0645	*3,250	92.0	*5.56	1.695						

Minimum daily discharge, 38 ft³/s (1.08 m³/s) Jan. 6-8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	83	138	60	52	221	191	367	215	91	50	72
2	85	82	117	50	50	209	188	391	203	100	49	70
3	85	82	106	47	55	203	185	391	203	85	49	76
4	85	83	119	42	95	206	177	424	209	78	50	76
5	85	83	140	40	501	231	174	575	203	78	48	70
6	85	82	117	38	822	250	191	605	203	83	53	69
7	85	82	87	38	1680	359	247	504	194	82	49	66
8	85	83	91	38	292	455	295	424	172	78	48	64
9	83	91	117	42	294	412	317	371	161	76	48	66
10	83	85	112	80	387	351	317	332	153	76	48	66
11	83	74	158	110	521	306	306	306	146	76	45	62
12	83	78	156	116	642	281	288	299	146	76	46	61
13	78	83	131	126	902	267	281	303	140	76	50	59
14	80	80	131	115	620	261	264	313	136	74	58	59
15	80	78	131	112	477	250	257	348	126	74	62	59
16	82	87	119	112	379	278	254	375	124	76	64	59
17	82	91	122	110	321	285	257	383	146	72	59	59
18	82	89	119	106	281	267	261	363	163	66	62	59
19	83	91	108	106	257	250	250	344	136	62	66	59
20	82	91	110	110	228	228	231	332	124	62	72	59
21	78	89	110	119	218	215	215	328	117	62	67	58
22	78	89	106	112	203	203	206	328	110	62	70	56
23	80	87	106	104	188	194	218	351	104	62	62	56
24	80	87	108	106	188	185	237	391	104	62	70	56
25	80	89	110	106	185	182	241	367	107	62	69	56
26	80	89	108	104	241	191	237	363	93	61	66	56
27	78	89	108	104	228	206	250	363	89	59	70	56
28	78	106	94	95	228	215	288	325	85	59	76	56
29	82	106	85	80	---	221	321	248	80	58	69	56
30	83	119	69	60	---	212	351	250	80	58	70	56
31	83	---	67	55	---	203	---	228	---	54	85	---
TOTAL	2541	2628	3500	2643	10535	7797	7495	11332	4272	2200	1850	1852
MEAN	82.0	87.6	113	85.3	378	254	250	366	142	71.0	59.7	61.7
MAX	85	119	158	126	1680	455	351	605	215	100	85	76
MIN	78	74	87	38	50	182	174	228	80	54	45	56
AC-FT	5848	5210	6948	5248	20400	15470	14870	22480	8470	4360	3670	3670

CAL YR 1978 TOTAL 50955 MEAN 140 MAX 367 MIN 53 AC-FT 101100
WTR YR 1979 TOTAL 58645 MEAN 161 MAX 1680 MIN 38 AC-FT 116300

TUCANNON RIVER BASIN

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13344520 TUCANNON RIVER AT POWER, WA

LOCATION.--Lat 46°32'18", long 118°09'18", in SW¼NW¼ sec.11, T.12 N., R.37 E., Columbia County, Hydrologic Unit 17060107, at road bridge at Powers, 2 mi (3.2 km) northwest of Starbuck.

DRAINAGE AREA.--About 500 mi² (1,300 km²).

PERIOD OF RECORD.--Water years 1974, 1977 to current year.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is good.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SP- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)
OCT. 1978							
24...	1015	80	150	7.9	11.8	15	9.0
DEC							
20...	1000	110	155	8.0	2.4	5	3.0
JAN. 1979							
25...	1135	106	92	7.8	.6	20	8.0
FEB							
22...	1115	203	115	7.6	5.4	20	40
MAR							
20...	1045	231	110	8.0	7.6	5	10
APR							
25...	1010	241	145	7.8	9.0	5	3.0
MAY							
22...	1315	340	180	7.9	19.0	10	10
JUN							
19...	1215	133	170	7.9	18.6	5	7.0
JUL							
24...	1150	62	145	7.8	22.8	20	22
AUG							
28...	1130	80	150	7.0	20.8	10	45
SEP							
25...	1200	56	125	7.2	15.3	5	5.0

DATE	OXYGEN, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)
OCT. 1978						
24...	10.0	.16	.01	.080	.07	.21
DEC						
20...	13.1	.29	.01	.110	.12	.37
JAN. 1979						
25...	--	.28	.00	.090	.10	.31
FEB						
22...	10.9	.51	.05	.080	.09	.28
MAR						
20...	11.7	.18	.00	.050	.04	.12
APR						
25...	10.8	.07	.02	.050	.07	.21
MAY						
22...	6.5	.10	.01	.070	.11	.34
JUN						
19...	9.1	.07	.04	.060	.02	.06
JUL						
24...	8.0	.05	.03	.110	.08	.25
AUG						
28...	8.4	.05	.11	.070	.00	.00
SEP						
25...	9.0	.05	.02	.050	.07	.21

PALOUSE RIVER BASIN

13345300 PALOUSE RIVER AT PALOUSE, WA

LOCATION.--Lat 46°54'36", long 117°04'12", in SW¼NW¼ sec.6, T.16 N., R.46 E., Whitman County, Hydrologic Unit 17060108, on right bank at State Highway 6, 0.3 mi (0.5 km) east of the intersection of State Highways 6, 27, and 272 in Palouse and at mile 212.1 (194.8 km).

DRAINAGE AREA.--360 mi² (932 km²), approximately.

PERIOD OF RECORD.--May 1973 to current year. Chemical analyses October 1974 to September 1975, sediment records September 1961 to August 1964 (published as 13345400).

GAGE.--Water-stage recorder. Datum of gage is 2,412.62 ft (735.367 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers reference mark).

REMARKS.--Records good except those for Dec. 23 to Feb. 10, which are fair. Small diversions for irrigation upstream from station. Low flows regulated by millpond at Potlatch, Idaho.

AVERAGE DISCHARGE.--6 years (water year 1974-79), 288 ft³/s (8.156 m³/s), 208,700 acre-ft/yr (257 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,300 ft³/s (320 m³/s) Jan. 16, 1974, gage height, 16.08 ft (4.901 m); no flow Aug. 26 to Sept. 9, 1973, and Aug. 21-27, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,900 ft³/s (53.8 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)				
Feb. 13	0100	2,480	70.2	7.68	2.341	May 6	1315	*3,740	106	*9.08	2.768
Mar. 8	0045	2,500	70.8	7.40	2.256						

Minimum daily discharge, 2.6 ft³/s (0.074 m³/s) Sept. 26-30.

DISCHARGE IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	15	29	10	19	508	543	914	78	19	5.5	5.0
2	15	17	32	11	19	368	495	752	72	23	5.5	5.0
3	15	15	27	12	19	282	509	637	66	32	5.1	6.5
4	15	20	36	12	20	427	450	609	62	29	5.1	8.0
5	15	24	29	12	21	1130	495	1440	58	24	4.7	8.0
6	15	29	27	12	23	1570	738	3440	56	23	4.3	8.0
7	14	26	24	11	25	2000	1490	2420	56	22	3.9	7.5
8	13	22	22	13	28	1910	1250	1420	48	20	3.9	7.5
9	13	20	21	16	33	1080	1330	1060	48	18	3.2	6.5
10	13	18	20	19	45	752	1410	810	48	16	3.2	7.6
11	13	14	34	22	40	668	1050	637	45	18	3.2	6.0
12	13	11	36	23	600	749	830	514	42	19	3.2	7.0
13	13	10	32	23	1520	862	846	439	40	18	3.2	7.5
14	13	8.5	31	23	854	760	784	388	38	18	3.2	6.5
15	13	7.5	33	22	528	630	699	350	36	18	3.9	5.5
16	13	8.0	30	21	421	1360	683	322	36	16	7.5	5.1
17	13	11	27	21	312	1590	1080	292	36	15	10	4.7
18	13	14	27	21	330	1040	1300	258	54	14	13	4.3
19	13	18	23	19	388	790	970	228	69	13	12	4.3
20	13	19	20	23	280	704	728	203	54	11	11	3.5
21	13	15	27	27	244	640	592	181	45	11	8.5	3.2
22	13	17	24	26	193	651	525	166	39	10	7.5	3.2
23	13	19	27	23	166	637	556	153	35	9.6	6.5	2.9
24	13	19	28	23	148	675	975	144	31	9.6	6.5	2.9
25	13	18	29	23	270	825	1100	134	28	8.5	6.5	2.9
26	13	18	23	22	910	821	962	122	27	8.0	4.3	2.6
27	13	18	20	22	1010	858	866	110	24	8.0	5.1	2.6
28	13	18	18	22	738	1240	858	100	23	7.5	4.7	2.6
29	14	20	14	21	---	1040	874	96	21	7.0	4.7	2.6
30	15	22	12	20	---	826	1100	90	20	6.5	4.7	2.6
31	15	---	11	20	---	659	---	85	---	6.0	5.5	---
TOTAL	421	511.0	793	595	9254	28302	26088	18514	1335	477.7	179.1	152.1
MEAN	13.6	17.0	25.6	19.2	331	913	870	597	44.5	15.4	5.78	5.07
MAX	15	29	36	27	1520	2000	1490	3440	78	32	13	8.0
MIN	13	7.5	11	10	19	282	450	85	20	6.0	3.2	2.6
AC-FT	835	1010	1570	1180	18360	56140	51750	36720	2650	948	355	302
CAL YR 1978 TOTAL	68105.6		MEAN 187	MAX 2010	MIN 6.0	AC-FT 135200						
WTH YR 1979 TOTAL	86621.9		MEAN 237	MAX 3440	MIN 2.6	AC-FT 171800						

PALOUSE RIVER BASIN

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13346100 PALOUSE RIVER AT COLFAX, WA

LOCATION.--Lat 46°53'50", long 117°21'20", in NW¼NE¼ sec.11, T.16 N., R.43 E., Whitman County, Hydrologic Unit 17060108, on left bank 1,000 ft (305 m) upstream from Sixth Street crossing in Colfax, and 0.8 mi (1.3 km) upstream from South Fork.

DRAINAGE AREA.--497 mi² (1,287 km²).

PERIOD OF RECORD.--September 1955 to June 1973, October 1973 to September 1975 (annual maximum only), October 1975 to June 1978, December 1978 to May 1979 (discontinued). Published as Palouse River "near Colfax" 1955-63, where drainage area was 491 mi² (1,272 km²). Records published for both sites October 1963 to September 1964.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,956.94 ft (596.475 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Sept. 19, 1955, to Sept. 30, 1963, at site 3.1 mi (5.0 km) upstream at different datum.

REMARKS.--Records good except those for period of ice effect Dec. 1 to Feb. 10, which are fair. Many small diversions for irrigation above station. Slight regulation by millponds above station.

AVERAGE DISCHARGE.--19 years (water years 1956-72, 1976-77) 306 ft³/s (8.666 m³/s) 221,700 acre-ft/yr (273 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,600 ft³/s (357 m³/s) Jan. 16, 1974, gage height, 13.36 ft (4.072 m); minimum (water years 1956-72, 1976-77), 0.10 ft³/s (0.003 m³/s) Aug. 25-28, 1966.

EXTREMES FOR THE PERIOD DECEMBER 1, 1978 TO MAY 31, 1979.--Peak discharges above base 2,000 ft³/s (56.6 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 13	0615	*5,460	155	Mar. 17	0615	2,110	59.8
Feb. 26	1945	2000	56.6	May 6	1830	3,750	106
Mar. 8	0500	2,850	80.7				
			6.13				6.24
			6.94				7.70
			2.115				1.902
							2.347

Minimum daily discharge, 12 ft³/s (0.34 m³/s) Jan. 7, 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			47	21	20	806	869	1060				
2			46	20	20	600	595	884				
3			46	18	21	446	654	751				
4			50	16	23	663	547	674				
5			45	14	26	1700	559	1220				
6			40	13	30	2160	726	3260				
7			33	12	40	2530	1540	2930				
8			32	12	60	2450	1400	1720				
9			35	13	250	1440	1330	1260				
10			42	15	1000	1020	1550	996				
11			45	17	1940	851	1230	786				
12			46	18	1770	891	988	640				
13			44	19	4060	995	940	536				
14			43	20	1680	913	926	470				
15			43	22	936	922	867	426				
16			43	22	728	1470	779	387				
17			42	23	543	1910	1040	355				
18			40	22	685	1300	1470	320				
19			37	23	704	985	1190	283				
20			36	25	492	841	905	257				
21			38	27	427	816	730	227				
22			45	29	318	772	634	206				
23			50	30	279	729	627	189				
24			58	28	253	750	972	177				
25			60	26	645	867	1220	166				
26			52	24	1540	924	1120	154				
27			42	24	1630	918	988	140				
28			37	24	1170	1350	948	123				
29			33	23	---	1240	956	112				
30			28	23	---	1000	1140	106				
31			23	21	---	798	---	103				
TOTAL	---	---	1301	644	21354	35057	24180	20918	---	---	---	---
MEAN	---	---	42.0	20.8	763	1131	973	675	---	---	---	---
MAX	---	---	60	30	4060	2530	1550	3260	---	---	---	---
MIN	---	---	23	12	20	446	547	103	---	---	---	---
AC-FT	---	---	2580	1280	42360	69540	57880	41490	---	---	---	---

13348000 SOUTH FORK PALOUSE RIVER AT PULLMAN, WA

LOCATION.--Lat 46°43'57", long 117°10'48", in NE¼ sec. 6, T.14 N., R.45 E., Whitman County, Hydrologic Unit 17060108, on right bank at State Street crossing in Pullman, 600 ft (183 m) upstream from Missouri Flat Creek, and at mile 22.2 (35.7 km).

DRAINAGE AREA.--132 mi² (342 km²).

PERIOD OF RECORD.--February 1934 to September 1942, December 1959 to current year. Chemical analyses October 1973 to September 1974.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,326.3 ft (709.06 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 19, 1934, nonrecording gage at site 30 ft (9 m) upstream.

REMARKS.--Records excellent except those for Dec. 30 to Feb. 3, which are fair. Minor diversions for domestic use above station. Slight regulation caused by pondage at Robinson Park Dam on headwaters and by Moscow sewage disposal plant on Paradise Creek.

AVERAGE DISCHARGE.--27 years (water years 1935-42, 1961-79) 39.8 ft³/s (1.127 m³/s), 4.09 in/yr (104 mm/yr), 28,840 acre-ft/yr (35.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,570 ft³/s (129 m³/s) Jan. 21, 1972, gage height, 9.46 ft (2.883 m); minimum, 0.1 ft³/s (0.003 m³/s) Sept. 23, 1942, gage height, 0.50 ft (0.152 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since 1910, 9.5 ft (2.90 m) Feb. 26, 1948, discharge, 5,000 ft³/s (142 m³/s). Flood of Jan. 24, 1959, reached a stage of 6.5 ft (1.98 m) from floodmarks, discharge, 1,860 ft³/s (52.7 m³/s). Flood of Dec. 22, 1933, reached a stage of 6.0 ft (1.83 m) from gage readings furnished by Washington State University, discharge, 1,800 ft³/s (51.0 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 13	0230	*3,740 106	*8.25 2.515

Minimum discharge, 1.9 ft³/s (0.054 m³/s) July 24, Aug. 2, 7, 9; gage height, 0.63 ft (0.192 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	5.3	29	6.4	6.4	195	50	52	13	8.9	3.0	4.2
2	4.2	5.2	18	6.0	6.5	140	62	47	13	9.4	3.0	3.6
3	4.0	6.3	15	5.6	6.8	110	72	41	12	6.7	3.1	4.3
4	4.7	6.3	28	5.0	7.7	245	57	68	10	5.7	3.3	5.4
5	4.3	5.3	19	4.6	12	479	49	282	11	5.9	3.9	4.5
6	4.0	5.0	14	4.3	19	583	76	213	11	5.9	3.3	4.4
7	5.0	5.3	9.8	4.4	259	590	105	115	11	5.2	3.3	3.9
8	4.8	6.1	8.5	5.2	150	317	69	100	9.7	5.0	3.3	5.7
9	4.5	5.8	7.8	6.0	255	182	88	120	9.7	4.5	3.3	7.3
10	5.3	5.0	6.4	6.5	826	142	73	81	8.7	4.7	3.1	4.7
11	4.5	5.0	26	7.0	921	130	76	68	8.2	4.3	3.4	4.9
12	4.7	5.0	21	7.3	1330	133	72	60	8.0	4.2	3.9	4.4
13	4.5	5.0	14	7.3	1770	122	90	53	7.3	3.7	5.2	3.5
14	4.3	5.0	14	7.5	401	104	62	48	6.9	4.5	5.8	3.9
15	4.3	5.3	13	7.7	202	103	57	44	6.9	4.3	6.9	4.3
16	4.3	6.7	11	7.6	142	205	57	39	7.5	3.9	8.2	4.2
17	4.5	11	10	7.4	117	149	98	36	22	3.4	5.2	3.8
18	4.5	7.7	10	7.4	246	106	64	33	20	3.3	4.5	3.8
19	4.0	7.7	9.4	7.6	210	91	55	30	13	3.4	5.0	3.8
20	4.3	6.9	9.0	8.2	118	81	54	28	9.7	3.6	6.1	3.7
21	4.5	7.1	13	9.9	98	74	47	26	8.4	3.4	5.0	4.2
22	4.7	6.7	16	9.5	84	68	45	24	6.9	3.6	4.2	4.1
23	4.5	6.3	17	8.4	77	61	70	22	5.7	3.4	4.0	4.5
24	5.5	6.1	46	7.8	74	59	132	24	5.9	3.4	4.5	4.1
25	5.2	6.9	32	7.7	420	57	78	21	6.1	3.6	4.5	4.2
26	4.5	6.3	22	7.6	699	57	62	21	5.7	3.3	4.3	3.7
27	5.2	6.1	17	7.4	522	94	54	17	6.1	3.7	4.2	3.7
28	5.0	7.3	12	7.2	328	109	48	16	5.5	3.3	4.2	3.8
29	5.7	9.7	11	6.8	---	79	45	16	5.3	3.9	4.0	3.7
30	5.0	26	8.0	6.6	---	62	46	15	4.8	3.6	4.7	4.0
31	5.3	---	6.6	6.4	---	57	---	15	---	3.3	4.3	---
TOTAL	144.1	209.4	495.5	214.3	9307.4	4984	2013	1775	274.0	139.0	134.4	128.3
MEAN	4.65	6.98	16.0	6.91	332	161	67.1	57.3	9.30	4.48	4.34	4.28
MAX	5.7	26	46	9.9	1770	590	132	242	22	9.4	8.2	7.3
MIN	4.0	5.0	6.6	4.3	6.4	57	45	15	4.8	3.3	3.0	3.5
CFSM	.04	.05	.12	.05	2.52	1.22	.51	.43	.07	.03	.03	.03
IN.	.04	.06	.14	.06	2.62	1.40	.57	.50	.08	.04	.04	.04
AC-FT	286	415	983	425	18460	9890	3990	3520	553	276	267	254

CAL YR 1978 TOTAL 12612.7 MEAN 34.6 MAX 419 MIN 3.0 CFSM .26 IN 3.55 AC-FT 25020
WTR YR 1979 TOTAL 19823.4 MEAN 54.3 MAX 1770 MIN 3.0 CFSM .41 IN 5.59 AC-FT 39320

PALOUSE RIVER BASIN

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13348000 SOUTH FORK PALOUSE RIVER AT PULLMAN, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974, 1977 to current year.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW (CFS)	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)
OCT - 1978							
24...	0745	--	6.9	600	8.2	9.7	28
NOV							
29...	0930	--	9.6	560	8.1	7.7	28
DEC							
20...	0845	--	8.2	530	7.8	1.0	5
JAN - 1979							
25...	0930	7.7	--	540	7.8	.4	--
FEB							
22...	0950	--	76	295	8.3	1.8	30
MAR							
20...	0905	--	81	250	7.3	5.7	5
APR							
25...	0915	--	79	400	7.9	11.6	5
MAY							
22...	1000	--	24	480	7.0	18.6	5
JUN							
19...	0930	--	13	505	7.2	14.2	15
JUL							
24...	0915	--	4.7	--	7.1	17.0	20
AUG							
28...	0900	--	5.2	840	7.3	15.4	10
SEP							
25...	0915	--	5.5	700	7.7	12.2	5

DATE	TUR- BID- ITY (NTU)	OXYGEN- DIS- SOLVED (MG/L)	NITRO- GEN- NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN- AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS- TOTAL (MG/L AS P)	PHOS- PHORUS- ORTHO- DIS- SOLVED (MG/L AS P)	PHOS- PHATE- ORTHO- DIS- SOLVED (MG/L AS PO4)
OCT - 1978							
24...	8.0	11.0	6.3	.06	3.90	2.6	8.0
NOV							
29...	70	10.3	5.6	.54	2.80	1.1	3.4
DEC							
20...	15	12.3	6.4	.38	3.20	2.7	8.3
JAN - 1979							
25...	--	--	6.2	.60	2.70	2.1	6.4
FEB							
22...	120	12.0	9.0	.47	.520	.44	1.4
MAR							
20...	25	12.3	4.3	.17	.440	.35	1.1
APR							
25...	39	9.9	3.2	.26	.580	.37	1.1
MAY							
22...	34	7.1	4.4	.17	.970	.30	.92
JUN							
19...	80	9.3	4.0	1.8	--	.68	2.1
JUL							
24...	60	9.2	3.7	.11	--	2.1	6.4
AUG							
28...	5.0	9.8	4.7	.04	--	4.9	15
SEP							
25...	15	4.7	7.2	.05	5.70	5.5	17

PALOUSE RIVER BASIN

13348500 MISSOURI FLAT CREEK AT PULLMAN, WA

LOCATION.--Lat 46°43'59", long 117°10'47", on line between secs.5 and 6, T.14 N., R.45 E., Whitman County, Hydrologic Unit 17060108, on left bank at State Street crossing in Pullman, 600 ft (183 m) upstream from mouth.

DRAINAGE AREA.--27.1 mi² (70.2 km²).

PERIOD OF RECORD.--February 1934 to September 1940, January 1960 to September 1979 (discontinued).

REVISED RECORDS.--WSP 1317: Drainage area.

GAGE.--Water-stage recorder and concrete control with a 90° V-notch weir inside a 2-ft (0.61 m) Parshall flume. Datum of gage is 2,328.4 ft (709.70 m) above National Geodetic Vertical Datum of 1929. Prior to Mar. 15, 1934, nonrecording gage at site 20 ft (6.1 m) upstream at same datum.

REMARKS.--Records good except those for Dec. 31 to Feb. 10, which are fair. No regulation or diversion. Waste water from swimming pools at Washington State University is discharged into stream above station.

AVERAGE DISCHARGE.--25 years (water years 1935-40, 1961-79), 8.47 ft³/s (0.240 m³/s), 6,140 acre-ft/yr (7.57 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,220 ft³/s (34.6 m³/s) Jan. 21, 1972, gage height, 6.65 ft (2.027 m); no flow for part of Nov. 21, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 26, 1948, reached a stage of 6.3 ft (1.92 m), discharge, 1,500 ft³/s (42.5 m³/s) by slope-area measurement, 0.9 mi (1.4 km) upstream. Flood of Jan. 24, 1959, reached a stage of 4.57 ft (1.393 m), from floodmarks, discharge, 870 ft³/s (24.6 m³/s) by slope-area measurement, 0.25 mi (0.40 km) upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft³/s (7.08 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 13	0200	*1,160 32.9	*5.44 1.658	Feb. 26	2015	310 8.78	2.86 0.872

Minimum discharge, 0.13 ft³/s (0.004 m³/s) Sept. 14, gage height, 0.27 ft (0.082 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.27	.34	4.9	.21	.32	41	7.7	8.6	.85	1.3	.25	.34
2	.27	.34	1.9	.23	.31	29	12	8.6	.82	.56	.22	.27
3	.29	.44	2.0	.24	.40	22	13	5.0	.76	.49	.76	.54
4	.27	.44	6.4	.24	.60	86	9.9	7.7	.70	.42	.34	.30
5	.27	.40	2.2	.25	10	149	8.6	45	.67	.40	.25	.25
6	.27	.36	1.2	.25	17	151	19	18	.73	.44	.29	.24
7	.29	.36	.50	.24	29	134	16	9.9	.64	.38	.34	.24
8	.29	.89	.40	.26	26	53	9.9	8.6	.64	.34	.32	.73
9	.29	.36	.60	.29	24	33	11	9.0	.61	.34	.42	.30
10	.29	.32	1.0	.32	110	27	9.4	6.9	.61	.46	.30	.25
11	.27	.29	8.2	.35	231	24	11	5.7	.54	.49	.27	.27
12	.27	.27	2.4	.36	372	24	11	5.3	.56	.32	.29	.24
13	.27	.29	1.7	.38	519	19	14	5.0	.49	.30	1.4	.21
14	.27	.25	1.6	.38	106	16	7.7	4.7	.51	.30	1.4	.19
15	.27	.24	1.6	.36	47	15	7.3	4.2	.51	.42	.70	.19
16	.29	.29	1.3	.34	28	43	7.3	3.7	.59	.30	.36	.19
17	.30	1.9	1.3	.35	24	20	14	2.8	.42	.32	.64	.22
18	.30	.92	1.3	.36	70	15	7.7	2.3	1.4	.29	.32	.21
19	.32	.67	1.2	.35	53	13	6.4	2.0	.89	.29	.73	.19
20	.30	.56	1.1	.41	25	11	6.0	1.9	.73	.30	.32	.22
21	.30	.50	2.2	.44	18	10	5.3	1.8	.61	.27	.30	.22
22	.30	.48	2.0	.43	16	9.4	5.3	1.5	.59	.29	.30	.29
23	.30	.56	3.9	.35	14	8.6	8.6	1.5	.56	.29	.40	.40
24	.34	.67	11	.35	13	8.6	21	1.6	.49	.27	.27	.25
25	.30	.61	5.4	.38	114	7.7	9.9	1.5	.59	.29	.27	.22
26	.30	.59	3.9	.36	223	7.3	6.9	1.3	.54	.30	.27	.24
27	.30	.54	2.4	.35	114	17	5.7	1.1	.44	.29	.30	.22
28	.36	.67	1.5	.36	77	17	5.0	1.1	.42	.27	.29	.24
29	.44	1.4	.45	.34	---	12	4.7	1.0	.42	.25	.29	.21
30	.36	6.4	.30	.32	---	9.0	4.7	.49	.36	.25	.38	.22
31	.36	---	.22	.31	---	8.6	---	.42	---	.25	.38	---
TOTAL	9.37	22.55	76.27	10.15	2201.63	1040.2	286.0	179.21	22.47	11.48	13.37	8.10
MEAN	.30	.75	2.46	.33	81.5	33.6	9.53	5.78	.75	.37	.43	.27
MAX	.49	6.4	11	.45	519	151	21	45	4.2	1.3	1.4	.73
MIN	.27	.24	.22	.21	.31	7.3	4.7	.92	.36	.25	.22	.19
AC-FT	19	45	151	20	4530	2060	567	355	45	23	27	16

CAL YR 1978 TOTAL 2701.92 MEAN 7.40 MAX 104 MIN .21 AC-FT 5340
WTR YR 1979 TOTAL 3960.80 MEAN 10.9 MAX 519 MIN .19 AC-FT 7860

PALOUSE RIVER BASIN

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15349210 PALOUSE RIVER BELOW SOUTH FORK, AT COLFAX, WA

LOCATION.--Lat 46°53'23", long 117°22'09", in NW¼SW¼ sec.11, T.16 N., R.43 E., Whitman County, Hydrologic Unit 17060108, on left bank at Colfax, 750 ft (229 m) downstream from South Fork, 0.5 mi (0.5 km) upstream from bridge on U.S. Highway 295, and at mile 89.5 (144.0 km).

DRAINAGE AREA.--796 mi² (2,062 km²).

PERIOD OF RECORD.--October 1963 to June 1973, October 1973 to September 1975 (annual maximum only), October 1975 to current year.

REVISED RECORDS.--WSP 2134: 1967, 1968.

GAGE.--Water-stage recorder. Datum of gage is 1,952.22 ft (588.941 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records fair except those for Dec. 29 to Mar. 7, which are poor. Small diversions for irrigation above station. Slight regulation by millpond and city of Moscow, Idaho, sewage disposal plant.

AVERAGE DISCHARGE.--13 years (water years 1964-72, 1976-79) 392 ft³/s (11.10 m³/s), 284,000 acre-ft/yr (350 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,800 ft³/s (476 m³/s) Jan. 16, 1974, gage height, 18.75 ft (5.709 m); minimum, 1.7 ft³/s (0.048 m³/s) Aug. 3, 23, 1966; minimum gage height, 0.88 ft (0.268 m) Aug. 3, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 3, 1963, reached a stage of 16.49 ft (5.026 m) discharge, 14,500 ft³/s (411 m³/s), by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 3,000 ft³/s (85.0 m³/s) and maximum (*) from high-water mark:

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 13	unknown	*13,400 379	*17.12 5.218	Mar. 7	unknown	unknown ---	unknown ---
Feb. 26	unknown	unknown ---	unknown ---	May 6	1700	4,080 116	9.37 2.856

Minimum daily discharge, 4.6 ft³/s (0.13 m³/s) Sept. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	29	112	28	27	1300	818	1070	134	42	9.2	7.1
2	29	29	88	26	27	1000	756	903	118	51	8.7	6.4
3	29	31	72	24	28	780	849	760	106	49	8.3	5.8
4	28	37	85	21	31	1100	724	700	98	57	8.3	6.1
5	32	34	96	19	50	2400	704	1470	89	51	7.8	8.3
6	31	33	72	18	70	1300	872	3730	88	45	7.5	7.5
7	30	42	56	17	330	3700	1770	3020	84	43	6.8	7.5
8	31	41	50	17	240	3100	1550	1710	77	37	7.5	6.1
9	29	37	48	19	500	1760	1430	1200	65	33	6.4	6.8
10	29	27	50	22	2000	1240	1670	990	65	31	6.1	9.2
11	31	26	63	24	3600	1100	1310	780	63	30	6.4	6.4
12	29	29	110	26	4800	1130	1100	652	57	30	5.5	5.2
13	31	24	109	27	8700	1270	1870	575	54	28	6.8	5.2
14	28	23	85	28	2600	1110	1020	519	51	26	8.3	4.6
15	27	23	76	30	1150	1080	890	476	48	26	11	7.5
16	28	34	84	30	950	1850	849	447	44	29	13	7.8
17	29	51	64	31	750	2240	1140	415	56	28	11	7.1
18	27	48	51	30	1140	1520	1530	379	80	24	8.3	7.1
19	27	27	55	31	1180	1210	1210	344	88	22	12	8.7
20	27	21	59	34	780	1950	935	322	92	22	15	12
21	27	31	53	37	690	1010	780	296	76	21	15	12
22	27	39	67	39	480	957	704	265	66	16	11	13
23	27	35	86	39	440	899	720	247	59	14	9.7	12
24	27	37	107	36	420	913	1140	240	53	14	8.7	12
25	31	39	179	34	1500	1010	1300	224	48	14	8.3	12
26	29	35	125	32	3000	1880	1750	200	46	14	7.8	13
27	28	37	89	32	2000	1110	1810	193	43	13	7.1	13
28	28	36	67	32	2000	1590	962	183	40	12	6.8	11
29	30	42	50	30	---	1410	962	171	36	11	6.4	6.8
30	29	67	48	30	---	1140	1750	162	35	11	5.8	11
31	30	---	30	28	---	939	---	156	---	11	7.5	---
TOTAL	844	1036	2378	671	40283	45488	32075	22887	2659	855	268.8	259.2
MEAN	28.8	34.5	76.7	28.1	1439	1467	1589	738	88.6	27.6	8.65	8.61
MAX	32	67	179	39	8700	3700	1770	3730	134	57	15	13
MIN	27	21	30	17	27	780	704	156	35	11	5.5	4.6
AC-FT	1770	2050	4720	1730	79900	98230	63620	45400	4080	1700	532	512
CAL YR 1978 TOTAL	100214.8			MEAN 291	MAX 2970	MIN 11	AC-FT 210780					
WTR YR 1979 TOTAL	149352.2			MEAN 409	MAX 8700	MIN 4.6	AC-FT 194200					

LOCATION.--Lat 46°45'51", long 118°05'52", in NE¼SE¼ sec.27, T.15 N., R.37 E., Whitman County, Hydrologic Unit 17060108, on left bank 150 ft (46 m) downstream from bridge on State Highway 26 at Hooper, 0.3 mi (0.5 km) upstream from Cow Creek, 3.5 mi (5.6 km) downstream from right bank tributary, 6.0 mi (9.7 km) downstream from Willow Creek, and at mile 19.6 (31.5 km).

DRAINAGE AREA, -- 2,500 mi² (6,475 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April to August 1897 (gage heights only), September 1897 to December 1899, April 1900 to April 1907, June 1908 to July 1912, March 1913 to March 1916, February 1951 to current year. Prices published as "near Hooper."

REVISED RECORDS.--WSP 1267: 1897-1904, 1910(M), 1915-16(M). WSP 1447: 1910. WSP 1934: Drainage area.
WSP 1447: 1906(M). WSP 1567: 1908-9(M).

GAGE.--Water-stage recorder. Altitude of gage is 1,040.8 ft (317.24 m), National Geodetic Vertical Datum of 1929.
Apr. 1 to Aug. 31, 1897, nonrecording gage at site 2.5 mi (4.0 km) upstream at different datum. Sept. 9, 1897,
to March 1910, various nonrecording gages at site 1.5 mi (2.4 km) upstream from present site at different datum.
Feb. 8 to Mar. 28, 1951, nonrecording gage at present site and datum.

REMARKS. --Water-discharge records good except those for Dec. 30 to Feb. 7, which are fair. Discharge for irrigation and municipal use.

AVERAGE DISCHARGE...41 years (water years 1898-99, 1901-06, 1909-11, 1914-15, 1952-79), 619 ft³/s (17.53 m³/s)
448,500 acre-ft/yr (553 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,500 ft³/s (949 m³/s) Feb. 4, 1963, gage height, 19.13 ft (5.831 m) from rating curve extended above 18,000 ft³/s (510 m³/s) on basis of slope-area measurement of peak flow; no flow part or all of each day June 25, 1910, Aug. 1-17, Aug. 28 to Sept. 4, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,700 ft³/s (105 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ .s)	Gage height (ft) (m)
Feb. 11	0100	10,500	297
Feb. 13	2000	*23,100	054
Feb. 27	0300	6,230	176

Minimum discharge, 11 ft³/s (0.31 m³/s) Aug. 13, gage height, 2.75 ft (0.838 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	MEAN VALUES												
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	52	69	147	70	62	3390	1270	1450	245	73	21	22	
2	53	73	171	60	65	2540	1130	1320	228	78	20	26	
3	56	74	173	55	67	2050	1110	1150	217	76	17	31	
4	55	77	174	50	73	1780	1160	1010	205	70	18	34	
5	53	77	166	48	100	3160	1020	1050	192	69	17	37	
6	53	77	140	46	180	4710	1020	2920	182	87	17	37	
7	56	78	100	45	350	5300	1080	3980	178	83	17	37	
8	56	75	90	45	612	5400	2000	2640	174	76	17	35	
9	56	77	100	46	1390	3840	1730	1890	170	69	16	38	
10	54	77	125	48	3800	2810	1900	1600	164	63	14	36	
11	53	52	164	53	7070	2280	1880	1320	155	59	14	35	
12	54	56	166	57	9000	2050	1590	1090	148	55	13	35	
13	55	55	149	58	20300	2030	1400	946	132	54	12	35	
14	56	65	170	58	11000	1970	1450	840	123	52	14	35	
15	56	72	172	62	5360	1770	1300	762	118	49	16	34	
16	59	87	150	64	3540	1950	1180	703	115	50	15	34	
17	61	93	149	65	2680	3020	1160	645	125	49	16	33	
18	62	98	157	65	2530	2600	1660	592	137	47	15	32	
19	60	85	148	68	3250	2020	1710	548	146	47	18	32	
20	59	59	138	72	2640	1710	1390	508	159	46	20	33	
21	60	56	140	78	1990	1560	1160	466	164	43	27	33	
22	62	65	142	80	1630	1490	1010	427	157	41	36	32	
23	62	80	149	85	1390	1390	964	392	137	40	28	32	
24	65	95	162	80	1240	1310	1070	375	120	36	28	33	
25	65	104	169	78	1550	1300	1670	388	112	35	31	31	
26	65	102	170	75	4260	1410	1600	345	105	33	29	30	
27	65	101	203	72	5680	1430	1410	318	94	32	23	29	
28	67	105	178	68	6540	1670	1290	294	88	29	21	29	
29	66	103	125	63	---	2000	1250	277	92	26	21	29	
30	66	115	100	63	---	1700	1250	267	74	25	21	32	
31	69	---	85	63	---	1450	---	257	---	23	23	---	
TOTAL	1825	2198	4572	1940	96349	73090	61274	30762	6444	1046	615	979	
MEAN	59.2	70.9	147	62.6	3441	2358	1376	992	148	33.1	19.8	37.6	
MAX	69	115	203	85	20300	5400	2868	3980	245	89	36	38	
MIN	52	52	85	45	62	1300	964	257	74	23	12	22	
AC-FT	3648	4760	9070	3850	141100	145000	81070	68980	8810	3260	1220	1940	
CAL YR 1978	TOTAL	168870	MEAN 439	MAX	3790	MIN 12	145000	81070	68980	8810	3260	1220	1940
WTR YR 1979	TOTAL	168870	MEAN 439										

PALOUSE RIVER BASIN

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13551000 PALOUSE RIVER AT HOOPER, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years, 1959-71, 1974 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1961 to September 1971.

SUSPENDED SEDIMENT: October 1961 to September 1971.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM CUHALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN DIS- SOLVED (MG/L)	NITRO- GEN- NITRATE TOTAL (MG/L AS N)	NITRO- GEN- NITRITE TOTAL (MG/L AS N)
OCT * 1978										
24...	0915	65	240	8.3	9.2	20	70	10.9	.71	.01
NOV										
29...	1540	100	390	7.3	2.7	15	11	12.6	2.3	.01
DEC										
20...	1525	131	295	7.3	1.1	28	30	13.6	2.7	.02
FEB * 1979										
22...	1515	1540	265	7.6	4.2	45	145	11.1	5.0	.10
MAR										
20...	1450	1670	210	8.3	8.6	5	40	11.1	3.0	.06
APR										
25...	1400	1760	270	6.5	13.6	20	33	10.0	1.5	.14
MAY										
22...	1200	428	380	6.8	21.5	5	45	7.0	1.1	.08
JUN										
19...	1015	144	295	7.1	17.4	10	25	9.0	.03	.04
JUL										
24...	1045	36	310	8.0	22.8	5	42	8.4	.06	.02
AUG										
28...	1020	21	330	9.1	21.7	15	15	8.4	.08	.02
SEP										
25...	1610	31	410	8.8	10.0	10	35	8.9	.08	.02

DATE	NITRO- GEN- NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN- AMMONIA TOTAL (MG/L AS N)	NITRO- GEN- ORGANIC TOTAL (MG/L AS N)	NITRO- GEN-AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN- TOTAL (MG/L AS N)	NITRO- GEN- TOTAL (MG/L AS NO3)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHOM- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHOM- DIS- SOLVED (MG/L AS PO4)
OCT * 1978									
24...	.72	.01	.40	.41	1.1	5.0	.270	.32	.98
NOV									
29...	2.3	.34	.43	.77	3.1	14	1.00	.04	.12
DEC									
20...	2.7	.13	.59	.72	3.4	15	.400	.41	1.3
FEB * 1979									
22...	5.4	.22	1.5	1.7	7.6	34	.280	.22	.67
MAR									
20...	3.1	.05	.45	.50	3.6	16	.180	.14	.43
APR									
25...	1.6	.06	.40	.55	2.2	9.5	.230	.18	.55
MAY									
22...	1.4	.00	.50	.50	1.7	7.5	.140	.16	.49
JUN									
19...	.07	.02	1.7	1.7	1.8	7.8	.220	.04	.12
JUL									
24...	.08	.11	.93	.94	1.0	4.5	.260	.19	.58
AUG									
28...	.10	.05	.05	.70	.80	3.5	.140	.13	.40
SEP									
25...	.02	.13	1.4	1.5	1.5	6.7	.150	.07	.21

PALOUSE RIVER BASIN

13351600 SPRAGUE LAKE NEAR SPRAGUE, WA

LOCATION.--Lat 47°16'47", long 118°01'26", in NE¼SE¼ sec.28, T.21 N., R.38 E., Lincoln County, Hydrologic Unit 17060108, on southeast shore 3.1 mi (5.0 km) southwest of Sprague.

DRAINAGE AREA.--289 mi² (749 km²).

PERIOD OF RECORD.--September 1956 to current year. Prior to October 1960, published as Colville Lake near Sprague. Chemical analyses April 1975 to September 1975.

REVISED RECORDS.--WSP 1934: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 1, 1975, nonrecording gages at several sites, all at present datum except period Sept. 11, 1958 to Sept. 30, 1959, which was at datum 1,865.53 ft (568.614 m) higher.

REMARKS.--Some regulation by small dam at outlet. No known diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 1,881.93 ft (573.612 m) from high-water mark, occurred during the period Jan. 13-29, 1974; minimum observed, 1,875.14 ft (571.545 m) Nov. 2, 1975.

EXTREMES OUTSIDE PERIOD OF RECORD.--Lake reached an elevation at 1,881.75 ft (573.557 m) in March 1956 (from high-water mark).

EXTREMES FOR CURRENT YEAR.--Maximum recorded elevation, 1,880.02 ft (573.030 m) Apr. 13; minimum recorded elevation, 1,877.64 ft (572.305 m) Nov. 10.

ELEVATION, IN FEET NGVD, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1877.86	1877.71	---	---	---	1878.51	1879.77	1879.50	1878.87	---	1878.12	1877.85
2	1877.84	1877.72	---	---	---	1878.51	1879.76	1879.48	1878.86	---	1878.10	1877.87
3	1877.83	1877.74	---	---	---	1878.51	1879.80	1879.45	1878.85	---	1878.09	1877.89
4	1877.82	1877.69	---	---	---	1878.50	1879.83	1879.45	1878.85	---	1878.05	1877.90
5	1877.81	1877.74	---	---	---	1878.50	1879.83	1879.43	1878.85	---	1878.04	1877.98
6	1877.81	1877.74	---	---	---	1878.50	1879.85	1879.42	1878.78	---	1878.01	1877.98
7	1877.81	1877.76	---	---	---	1878.51	1879.89	1879.37	1878.74	---	1877.99	1877.87
8	1877.80	1877.77	---	---	---	1878.51	1879.89	1879.35	1878.74	---	1877.98	1877.88
9	1877.80	1877.73	---	---	---	1878.50	1879.89	1879.32	1878.72	---	1877.96	1877.86
10	1877.81	1877.68	---	---	---	1878.50	1879.88	1879.31	1878.71	---	1877.94	1877.84
11	1877.80	1877.71	---	---	---	1878.51	1879.89	1879.27	1878.70	---	1877.94	1877.83
12	1877.77	1877.72	---	---	---	1878.55	1879.91	1879.26	1878.69	---	1877.91	1877.82
13	1877.76	1877.72	---	---	---	1878.66	1879.96	1879.23	1878.68	---	1877.88	1877.81
14	1877.75	1877.71	---	---	---	1878.71	1879.91	1879.21	1878.66	---	1877.91	1877.80
15	1877.75	1877.71	---	---	---	1878.80	1879.92	1879.19	---	---	1877.93	1877.80
16	1877.75	1877.72	---	---	---	1878.92	1879.91	1879.18	---	---	1877.92	1877.81
17	1877.75	1877.74	---	---	---	1878.99	1879.90	1879.15	---	---	1877.92	1877.80
18	1877.75	1877.73	1877.93	---	---	1879.06	1879.86	1879.14	---	---	1877.92	1877.79
19	1877.75	1877.66	1877.93	---	---	1879.11	1879.83	1879.09	---	---	1877.91	1877.79
20	1877.77	---	1877.92	---	---	1879.17	1879.79	1879.07	---	---	1877.90	1877.78
21	1877.75	---	1877.92	---	---	1879.23	1879.75	1879.06	---	---	1877.89	1877.78
22	1877.73	---	1877.92	---	---	1879.29	1879.71	1879.02	---	---	1877.88	1877.77
23	1877.73	---	1877.92	---	---	1879.34	1879.67	1879.02	---	---	1877.89	1877.77
24	1877.72	---	1877.92	---	---	1879.47	1879.68	1879.01	---	---	1877.92	1877.76
25	1877.72	---	1877.92	---	---	1879.54	1879.67	1878.99	---	---	1877.92	1877.75
26	1877.72	---	1877.91	1877.89	---	1879.54	1879.64	1879.00	---	---	1877.91	1877.76
27	1877.72	---	1877.91	1877.89	---	1879.54	1879.60	1878.96	---	---	1877.91	1877.74
28	1877.72	---	---	---	---	1879.58	1879.58	1878.93	---	---	1877.90	1877.74
29	1877.74	---	---	---	---	1879.65	1879.55	1878.91	---	---	1877.88	1877.72
30	1877.72	---	---	---	---	1879.73	1879.52	1878.90	---	1878.14	1877.88	1877.71
31	1877.71	---	---	---	---	1879.77	---	1878.86	---	1878.13	1877.84	---
MEAN	1877.77	---	---	---	---	1878.97	1879.79	1879.18	---	---	1877.94	1877.81
MAX	1877.86	---	---	---	---	1879.77	1879.96	1879.50	---	---	1878.12	1877.90
MIN	1877.71	---	---	---	---	1878.50	1879.52	1878.88	---	---	1877.88	1877.71

SNAKE RIVER BASIN

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13553000 SNAKE RIVER BELOW ICE HARBOR DAM, WA

LOCATION.--Lat 46°14'53", long 118°52'43", in NE¼SW¼, sec.24, T.9 N., R.31 E., Walla Walla County, Hydrologic Unit 1700110, in powerhouse forebay pier P-1 on south side of Bay 1 at Ice Harbor Dam, 9.0 mi (12.9 km) northeast of Burbank, and at mile 9.7 (15.6 km).

DRAINAGE AREA.--108,500 mi² (281,000 km²), approximately.

PERIOD OF RECORD.--October 1907 to March 1917 (gage heights only October 1907 to August 1909), March 1962 to current year. Published as "at Burbank" prior to 1911 and as "near Burbank" 1912-17. Chemical analyses October 1965 to September 1969, October 1971 to September 1972. For records collected at site 7.5 mi (12.1 km) downstream see station 13553200.

REVISED RECORDS.--WSP 1517: Drainage area.

GAGE.--Watt-hour meters on each turbine in Ice Harbor Dam powerhouse. Elevations are National Geodetic Vertical Datum of 1929. Oct. 2, 1907, to Mar. 31, 1917, nonrecording gage at site approximately 2 mi (3.2 km) downstream at datum 500 ft (91 m) higher. Mar. 25, 1962, to Sept. 30, 1968, water-stage recorder 1.0 mi (1.6 km) downstream National Geodetic Vertical Datum of 1929.

REMARKS.--Records computed from power output, flow over spillway, flow through fish ladder, and leakage records at Ice Harbor Dam. Diversions above station for irrigation of over 4,000,000 acres (16,000 km²). Flow regulated by Lake Sacajawea and many storage reservoirs and powerplants upstream.

COOPERATION.--Records furnished by Corps of Engineers. Records not reviewed but three discharge measurements made by the Geological Survey to verify turbine and spillway ratings.

AVERAGE DISCHARGE.--24 years (water years 1910-16, 1963-79) 55,800 ft³/s (1,580 m³/s), 40,427,000 acre-ft/yr (49,800 hm³/s).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 512,000 ft³/s (8,840 m³/s) June 19, 1974; no flow momentarily Aug. 27, 1965 (result of testing at Ice Harbor Dam).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 30, 1948, reached an elevation of 361.9 ft (110.31 m) at a site 0.7 mi (1.1 km) downstream from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 152,000 ft³/s (4,300 m³/s) May 6; maximum forebay elevation, 440.28 ft (134.197 m) July 19; minimum discharge, 100 ft³/s (2.83 m³/s) part of each day on many days during year; minimum forebay elevation, 436.09 ft (133.105 m) Jan. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8200	16000	38000	26000	44300	48300	45300	79900	80700	25000	32700	20200
2	20300	29000	49400	37800	49200	36200	53100	74300	79600	47300	24100	9400
3	27700	31000	29400	42600	36500	34900	65700	81100	79300	51100	14000	13600
4	29600	13500	44600	49200	2700	27500	62300	88200	78100	35200	11000	17800
5	25100	20300	37000	38600	14300	41300	26400	82900	102000	36200	11400	25600
6	26600	40500	39000	30000	32300	49000	55900	123000	105000	44500	17400	22900
7	8900	24900	41100	32900	28500	43200	37300	110000	83900	32000	30300	10200
8	12700	27300	37300	51300	36000	63000	47200	94100	79800	31500	26100	18500
9	26300	26600	35000	33300	35200	64100	71200	96700	75200	46700	21500	14200
10	26500	37500	25700	44500	33800	64600	67800	80900	63000	42600	16100	20700
11	31900	15700	40100	27800	35900	60200	65500	90800	64000	36300	19400	20200
12	29400	11000	36900	23100	51700	50000	54600	78900	45700	29000	11400	20100
13	20500	38800	39400	16200	61300	52600	56500	70700	79300	27000	14600	27700
14	14600	18600	35900	12600	61700	28200	53300	78700	43000	22900	11300	16200
15	9800	28200	37400	32400	64400	53100	69500	78400	77900	11700	11200	18100
16	21300	23800	41800	36200	43800	63200	53300	81200	78000	46600	10500	12000
17	17700	27300	43500	35400	44700	43600	32900	107000	78000	26000	11700	22000
18	28000	15300	37100	38900	27700	58400	72900	109000	74400	37300	11100	12400
19	26200	25500	37600	45300	39700	64300	64100	81200	68600	35100	11100	14600
20	25700	35600	37300	28000	41000	66100	71900	108000	63400	30300	23700	28000
21	18400	35000	39700	12000	36800	49300	42400	94100	66100	11700	29000	30200
22	13000	36000	28900	47300	48400	67100	94700	108000	59000	11200	15000	15400
23	29600	19500	33300	42100	43800	66700	55200	108000	49900	38800	17800	9000
24	34600	29500	27200	43200	27600	45600	57000	143000	34000	24200	23000	29300
25	23700	41600	29000	31600	19700	45300	61800	135000	61800	20300	21400	15000
26	19100	22100	36600	32900	44200	59900	55400	124000	59200	23600	9300	14100
27	25500	40800	36400	32000	50100	64300	59400	132000	64900	15300	31800	15600
28	13100	34000	41300	12100	56500	51400	66300	137000	67600	11500	18700	18200
29	10300	35400	40900	45400	---	69000	72600	119000	61600	11600	19600	8700
30	29300	40100	35300	45500	---	54400	74700	105000	49800	14700	23600	8900
31	23900	---	32500	44500	---	66900	---	184000	---	25700	17100	---
TOTAL	681800	840100	1135400	1063500	1104200	1715500	1719100	3109100	2156400	898900	557100	535000
MEAN	21990	27090	36630	34310	35640	55340	57270	100300	71000	29000	17970	17830
MAX	34600	41600	44000	51300	64400	69300	74700	143000	105000	51100	32700	30200
MIN	8200	11000	25700	12000	2700	27500	26400	78400	34000	11200	9300	8700
AC-FT	1352000	1668000	2292000	2107000	2108000	3403000	3408000	6147000	4277000	1783000	1185000	1061000
CAL YR 1970 TOTAL	14609700	MEAN	53730	MAX	140000	MIN	6200	AC-FT	30900000			
CTR YR 1979 TOTAL	15515100	MEAN	47510	MAX	143000	MIN	2700	AC-FT	36770000			

SNAKE RIVER BASIN

13353200 SNAKE RIVER AT BURBANK, WA
(National stream-quality accounting network station)

LOCATION.--Lat 46°12'59", long 119°01'22", in NE4SW4 sec.35, T.9 N., R.30 E., Franklin County, Hydrologic Unit 17060110, at U.S. Highway 395/410 bridge at Burbank, 2.2 mi (3.5 km) upstream from mouth and 7.5 mi (12.1 km) downstream from Ice Harbor Dam.

DRAINAGE AREA.--108,800 mi² (281,800 km²).

PERIOD OF RECORD.--Water years 1960-69, 1972 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March 1973 to September 1979 (discontinued).

WATER TEMPERATURES: April 1973 to current year.

INSTRUMENTATION.--Water-quality monitor since March 1973.

REMARKS.--July 1960 to August 1962, at site 0.7 mi downstream and August 1962 to September 1963, at present site, published as "near Pasco"; and October 1963 to September 1965, at present site and published as 13353000 "below Ice Harbor Dam". For records collected at site 7.5 mi (12.1 km) upstream see station 13353000. Flow data routed from station 13353000. Interruptions in the record were due to malfunctions of the instrument.

COOPERATION.--Water-discharge values furnished by the Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 476 micromhos Jan. 7, 1979; minimum, 60 micromhos June 14-15, 1978.

WATER TEMPERATURES: Maximum, 24.0°C Aug. 3, 7, 8, 1973, Aug. 4, 1974; minimum recorded, 0°C Jan. 26 to Feb. 5, 1979.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 476 micromhos Jan. 7; minimum recorded, 63 micromhos June 5.

WATER TEMPERATURES: Maximum, 23.5°C Aug. 5, 15-18, 22-25, 28; minimum, 0°C Jan. 26 to Feb. 5.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN- DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 8.7 UM-WF (COLS./ 100 ML)	STREP- TOCOCCI KF AGAR (COLS./ PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS- NONCAR- BONATE (MG/L CACO3)
OCT • 1978											
02...	1100	24600	214	--	16.9	1.6	8.6	3	3	73	0
NOV											
07...	1130	47100	280	8.0	12.2	1.0	9.1	--	27	100	10
DEC											
13...	1400	71600	284	7.6	4.8	.70	11.2	1	9	100	9
JAN • 1979											
10...	1130	63700	323	8.0	.8	1.3	14.2				
FEB											
28...	1000	51400	355	8.4	3.1	54	12.7	5	79	120	20
MAR											
20...	1200	64600	304	7.9	5.8	16	13.4	1	3	140	25
APR											
27...	1000	63600	280	--	10.4	4.1	12.2	1	<1	79	8
MAY											
16...	1030	77800	189	7.7	11.6	25	10.5	7	2	38	3
JUN											
11...	1100	56800	92	--	14.4	6.7	11.6	1	3	36	7
JUL											
02...	1100	51600	100	8.0	16.6	6.7	10.5	<1	1	36	6
AUG											
30...	0945	8400	205	7.8	22.2	2.9	7.8	<1200	30	80	13
SEP											
19...	1015	8500	250	7.9	21.2	1.4	7.5	12	14	75	8

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINEITY (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT • 1978											
02...	19	4.3	17	33	.9	2.4	77	21	9.1	.3	14
NOV											
07...	27	8.9	23	32	1.0	3.0	94	32	14	.3	18
DEC											
13...	25	9.0	24	33	1.0	3.1	94	32	18	.3	19
JAN • 1979											
10...	26	10	24	32	1.0	3.2	100	34	15	.3	19
FEB											
28...	30	11	23	29	.9	3.6	100	37	21	.4	20
MAR											
20...	36	11	21	25	.8	3.4	110	40	14	.4	21
APR											
27...	20	7.1	15	28	.7	2.5	71	25	8.4	.3	24
MAY											
16...	10	3.1	6.5	26	.5	1.4	35	11	5.3	.2	16
JUN											
11...	9.6	2.9	5.8	26	.4	.7	29	7.6	3.4	.2	11
JUL											
02...	9.6	2.8	6.7	36	.5	1.2	30	11	5.0	.2	11
AUG											
30...	19	4.0	17	31	.8	2.4	67	23	7.7	.4	11
SEP											
19...	19	4.8	19	45	1.0	3.0	79	29	9.4	.4	12

K Results based upon colony counts outside the ideal range.

Snake River Basin

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15553200 SNAKE RIVER AT BURBANK, WA--Continued

WATER QUALITY DATA

DATE	SOLIDS- RESIDUE AT 100 DEG. C DIS- SOLVED (MG/L)	SOLIDS- SUM OF CONSTI- TUENTS- DIS- SOLVED (MG/L)	SOLIDS- DIS- SOLVED (TONS AC-FT)	SOLIDS- DIS- SOLVED (TONS PER DAY)	SOLIDS- RESIDUE AT 100 DEG. C SUS- PENDED (MG/L)	NITRO- GEN- NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN- AMMONIA TOTAL (MG/L AS N)	NITRO- GEN- ORGANIC TOTAL (MG/L AS N)	NITRO- GEN-AM- MONIA + ORG- TOTAL (MG/L AS N)	NITRO- GEN-AM- MONIA + ORG- SUSP- TOTAL (MG/L AS N)	NITRO- GEN-AM- MONIA + ORG- DIS- TOTAL (MG/L AS N)
OCT * 1978											
02...	137	135	.19	9100	0	.31	.01	.33	.34	.07	.27
NOV											
07...	189	183	.26	24000	0	.41	.01	.70	.71	.57	.14
DEC											
13...	183	180	.25	35400	2	.40	.01	.21	.22	.01	.21
JAN * 1979											
10...	197	192	.27	33400	0	.46	.01	.24	.25	.08	.17
FEB											
20...	205	206	.28	28700	50	1.2	.09	.42	.51	.19	.32
MAR											
20...	211	213	.29	36800	0	1.5	.05	.27	.32	.09	.23
APR											
27...	144	145	.20	24700	10	.63	.04	.34	.38	.19	.19
MAY											
16...	75	75	.10	15000	30	.30	.03	.33	.36	.22	.14
JUN											
11...	69	59	.09	10600	12	.10	.03	.10	.13	.00	.14
JUL											
02...	76	66	.10	10600	14	.08	.01	.62	.63	.63	.00
AUG											
30...	--	129	.18	2930	4	.15	.19	.01	.20	.14	.06
SEP											
19...	147	147	.20	3370	21	.25	.01	.27	.28	.00	.29

DATE	NITRO- GEN- TOTAL (MG/L AS N)	NITRO- GEN- TOTAL (MG/L AS NO3)	PHOS- PHOSPH- TOTAL (MG/L AS P)	PHOS- PHOSPH- DIS- SOLVED (MG/L AS P)	CARBON- ORGANIC TOTAL (MG/L AS C)	CARBON- ORGANIC DIS- SOLVED (MG/L AS C)	CARBON- ORGANIC SUS- PENDED TOTAL (MG/L AS C)	SEDI- MENT- SUS- PENDED (MG/L)	SEDI- MENT- CHARGE- SUS- PENDED (T/DAY)	SED- SUSP- SIEVE DIAM. V FINER THAN .062 MM
OCT * 1978										
02...	.65	2.9	.040	.040	--	2.9	--	4	266	100
NOV										
07...	1.1	5.0	.060	.050	2.6	--	--	4	504	94
DEC										
13...	.62	2.7	.050	.050	2.2	--	--	2	307	90
JAN * 1979										
10...	.71	3.1	.040	.040	--	7.1	.2	3	516	--
FEB										
20...	1.7	7.6	.130	.100	3.7	--	--	60	8390	99
MAR										
20...	1.8	6.1	.060	.040	--	--	--	17	2970	100
APR										
27...	1.0	4.5	.070	.020	--	5.9	.9	22	3760	94
MAY										
16...	.65	2.9	.060	.030	5.5	--	--	--	--	96
JUN										
11...	.23	1.0	.030	.020	1.9	--	--	12	1840	95
JUL										
02...	.71	3.1	.020	.000	--	3.3	.1	15	2040	94
AUG										
30...	.35	1.0	.030	.020	2.1	--	--	2	65	95
SEP										
19...	.53	2.3	.050	.030	3.5	--	--	4	42	95

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIIUM, SUS- PENDED RECOV- ERABLE (UG/L AS BA)	BARIIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDED RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT * 1978										
02...	1100	2	3	0	0	0	--	--	--	0
JAN * 1979										
10...	1130	3	4	100	70	30	1	0	<1	10
APR										
27...	1000	2	2	0	0	30	0	0	<1	10
JUL										
02...	1100	1	0	0	0	20	200	0	360	0

DATE	CHRO- MIUM, SUS- PENDED RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDED RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDED RECOV- ERABLE (UG/L AS FE)
OCT * 1978							
02...	0	0	0	0	9	2	170
JAN * 1979							
10...	10	5	2	0	43	4	20
APR							
27...	40	2	0	0	43	1	1100
JUL							
02...	0	0	0	0	43	26	430

SNAKE RIVER BASIN

13353200 SNAKE RIVER AT BURBANK, WA--Continued

WATER QUALITY DATA

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDE RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDE RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDE RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)
OCT * 1978										
02...	40	--	--	--	30	30	0	.0	.0	.0
JAN * 1979										
10...	30	14	11	3	20	20	3	.0	.0	.0
APR										
27...	70	79	76	3	60	30	30	.1	.1	.0
JUL										
02...	90	310	220	95	20	10	6	.1	.1	.0

DATE	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, SUS- PENDE TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDE RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT * 1978									
02...	0	0	0	0	0	0	10	0	10
JAN * 1979									
10...	1	0	1	0	0	0	40	30	7
APR									
27...	0	0	0	0	0	0	20	20	<3
JUL									
02...	0	0	0	0	0	0	60	10	50

DATE	TIME	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2)	LENGTH OF EXPO- SURE (DAYS)
NOV * 1978						
07...	1130	12.1	19.7	96.5	37.8	36
JAN * 1979						
10...	1130	.000	.000	.000	.000	20
MAY						
16...	1030	.320	.390	.700	.600	19
JUL						
02...	1100	.000	.100	.300	.000	21

DATE	TIME	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS ALPHA, DIS- SOLVED (PCI/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED (PCI/L METHOD)	URANIUM DIS- SOLVED EXTRAC- TION (UG/L)
OCT * 1978											
02...	1100	3.6	<.4	--	--	2.4	<.4	2.4	<.4	.06	1.9
SEP * 1979											
19...	1015	3.0	<.4	2.0	<.3	3.3	<.4	3.4	<.4	.03	2.1

SNAKE RIVER BASIN

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13353200 SNAKE RIVER AT BURBANK, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C): WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	221	218	220				---	---	---	334	329	331
2	222	219	221				---	---	---	336	328	329
3	225	218	222				---	---	---	329	326	328
4	229	222	225				324	322	323	332	327	330
5	230	226	228				374	314	355	334	328	332
6	230	225	228				382	369	376	336	333	335
7	229	225	227				386	342	380	476	334	342
8	229	225	228				385	333	341	335	329	332
9	231	226	229				333	317	322	329	325	327
10	234	227	230				316	302	309	325	266	295
11	239	233	236				301	275	282	275	267	270
12	245	236	241				---	---	---	271	267	269
13	251	242	247				---	---	---	357	264	303
14	276	249	273				---	---	---	358	265	347
15	279	276	277				---	---	---	356	347	352
16	280	278	279				---	---	---	---	---	---
17	281	278	279				---	---	---	---	---	---
18	282	279	280				---	---	---	---	---	---
19	281	277	279				---	---	---	---	---	---
20	280	278	279				---	---	---	362	269	323
21	282	278	280				---	---	---	362	270	329
22	281	277	279				---	---	---	363	270	340
23	279	275	278				303	301	302	284	273	278
24	280	276	278				307	301	304	285	278	281
25	---	---	---				310	305	307	286	278	282
26	---	---	---				313	310	311	295	290	293
27	---	---	---				318	312	314	293	277	286
28	---	---	---				326	318	322	367	274	324
29	---	---	---				331	324	328	368	276	353
30	---	---	---				334	329	332	361	356	358
31	---	---	---				335	331	333	369	276	338
MONTH	282	218	252				386	275	326	476	264	319

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	283	278	280	338	321	329	232	226	228	200	193	196
2	289	284	286	345	331	338	233	227	230	194	191	192
3	293	289	291	342	324	330	233	228	231	194	189	192
4	294	290	292	324	311	318	235	229	233	190	181	187
5	372	280	343	310	290	300	235	230	233	181	172	176
6	373	354	365	290	278	282	238	228	231	173	165	168
7	373	288	328	286	273	279	244	233	237	164	161	163
8	374	281	301	294	275	284	244	239	242	160	152	157
9	290	284	287	304	292	298	250	241	246	150	140	146
10	287	284	286	311	301	306	247	242	246	139	133	136
11	291	284	289	322	309	315	241	236	239	132	125	128
12	299	284	291	328	317	323	239	234	235	124	120	123
13	320	298	309	339	326	333	233	229	231	119	112	117
14	320	306	312	346	334	340	233	228	231	110	103	108
15	307	298	303	343	334	337	236	229	233	101	96	99
16	295	285	291	337	327	331	236	232	234	95	93	94
17	284	260	271	333	324	328	241	226	234	95	92	93
18	273	264	268	340	327	329	235	231	234	98	94	97
19	267	262	265	332	326	330	235	230	232	102	99	100
20	271	264	257	329	300	313	229	231	226	105	101	103
21	271	261	266	298	275	285	222	215	219	107	104	105
22	282	268	274	270	254	261	212	204	208	106	104	105
23	291	279	284	253	246	250	202	190	193	106	103	105
24	296	287	291	247	243	245	190	181	187	103	93	98
25	298	293	295	245	242	244	199	188	193	93	86	90
26	313	295	303	244	243	245	204	195	200	86	81	83
27	322	307	313	243	232	236	219	203	208	82	80	81
28	324	314	318	239	235	237	209	205	207	78	71	80
29	---	---	---	233	231	232	208	205	207	78	76	77
30	---	---	---	232	228	230	205	201	203	76	72	74
31	---	---	---	230	227	228	---	---	---	73	67	70
MONTH	374	260	295	346	227	291	250	181	224	200	67	121

SNAKE RIVER BASIN

13353200 SNAKE RIVER AT BURBANK, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C) WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	68	66	67	100	98	99	143	136	140	215	199	209
2	68	67	67	111	97	99	147	139	142	210	191	200
3	67	66	66	100	98	99	152	141	146	219	184	205
4	67	66	67	100	99	100	151	146	149	227	209	219
5	66	63	65	103	100	102	154	146	150	223	214	218
6	67	64	65	106	103	104	159	149	153	224	215	220
7	74	67	70	106	104	105	160	151	155	232	216	223
8	80	75	78	107	106	106	163	154	159	229	219	225
9	88	80	85	108	106	107	165	158	161	230	221	226
10	94	88	91	107	106	107	171	161	165	231	222	226
11	93	87	90	110	107	108	172	164	168	232	222	229
12	91	89	90	113	109	111	173	165	170	234	227	231
13	90	87	88	114	111	112	174	165	170	237	228	233
14	91	87	88	117	113	115	155	138	147	238	230	234
15	95	91	93	120	117	118	165	153	158	236	230	234
16	95	94	95	124	119	121	174	159	165	237	230	233
17	94	91	93	128	124	125	184	163	172	256	230	245
18	93	90	92	133	128	130	188	177	183	256	251	252
19	94	92	93	137	133	136	188	181	185	256	250	253
20	95	93	94	142	137	139	191	178	184	254	251	252
21	94	93	93	142	140	141	198	180	185	253	250	252
22	97	94	96	144	139	141	190	184	188	256	251	254
23	100	97	98	145	129	137	198	189	193	260	253	257
24	102	98	100	135	130	132	206	194	199	261	240	251
25	101	99	100	137	131	134	206	198	201	246	236	242
26	100	97	99	138	132	135	210	203	206	246	235	240
27	97	96	97	141	134	137	213	199	207	251	236	243
28	101	97	99	139	136	138	216	206	210	252	238	247
29	101	100	101	142	137	140	217	205	211	251	244	248
30	101	99	100	141	137	139	215	192	206	248	242	245
31	---	---	---	141	138	139	218	196	206	---	---	---
MONTH	102	63	87	145	97	121	218	136	175	261	184	235
YEAR	476	63	215									

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	18.0	17.0	17.5	13.0	12.5	13.0	7.0	6.5	6.5	2.0	1.5	2.0
2	18.0	17.0	17.5	13.0	12.5	13.0	7.0	6.5	6.5	2.0	1.5	2.0
3	17.5	17.0	17.0	12.5	12.5	12.5	7.0	6.5	7.0	1.5	1.5	1.5
4	17.5	16.5	17.0	12.5	12.5	12.5	7.0	6.5	6.5	1.5	1.0	1.5
5	17.5	16.5	17.0	12.5	12.0	12.0	6.5	6.0	6.5	1.5	1.0	1.0
6	17.0	16.0	16.5	12.5	12.0	12.0	6.0	6.0	6.0	1.5	1.0	1.0
7	16.5	16.5	16.5	12.0	12.0	12.0	6.0	5.5	5.5	1.5	1.0	1.0
8	16.5	16.0	16.5	12.0	12.0	12.0	5.5	5.5	5.5	---	---	---
9	16.5	16.0	16.5	12.0	11.5	11.5	5.5	5.0	5.5	---	---	---
10	16.5	16.0	16.0	11.5	10.5	11.0	5.0	5.0	5.0	1.0	.5	1.0
11	16.5	16.0	16.0	10.5	9.5	10.0	5.0	5.0	5.0	1.0	.5	1.0
12	16.5	15.5	16.0	10.0	9.5	10.0	5.0	4.5	5.0	1.0	.5	1.0
13	16.0	15.0	16.0	10.0	9.5	10.0	5.0	4.5	4.5	1.0	.5	1.0
14	16.0	15.0	15.5	10.0	9.0	9.5	5.0	4.5	4.5	1.0	.5	1.0
15	16.0	15.5	15.5	9.5	8.5	9.0	4.5	4.5	4.5	1.0	.5	1.0
16	15.5	15.0	15.5	9.0	8.5	9.0	4.5	4.5	4.5	.5	.5	.5
17	15.5	15.0	15.5	8.5	8.5	8.5	4.5	4.0	4.5	.5	.5	.5
18	15.5	15.0	15.5	8.5	8.5	8.5	4.5	4.0	4.5	.5	.5	.5
19	15.5	14.5	15.0	8.5	7.5	8.0	4.5	4.0	4.0	.5	.5	.5
20	15.0	14.5	15.0	8.0	8.0	8.0	4.5	4.0	4.0	.5	.5	.5
21	15.0	14.5	14.5	8.5	8.0	8.0	4.5	4.0	4.0	.5	.5	.5
22	14.5	14.0	14.5	8.0	7.5	8.0	4.5	4.0	4.0	.5	.5	.5
23	14.5	14.0	14.5	7.5	7.5	7.5	4.5	4.0	4.0	.5	.5	.5
24	14.5	14.5	14.5	7.5	7.0	7.5	4.5	4.0	4.5	.5	.5	.5
25	14.5	14.0	14.0	7.5	7.0	7.0	4.5	4.0	4.0	.5	.0	.5
26	14.5	13.5	14.0	7.0	7.0	7.0	4.0	4.0	4.0	.5	.0	.0
27	14.0	13.5	14.0	7.0	7.0	7.0	4.0	3.5	3.5	.5	.0	.0
28	13.5	13.5	13.5	7.0	6.5	7.0	3.5	3.5	3.5	.5	.0	.5
29	13.5	13.0	13.0	7.0	6.5	6.5	3.5	3.0	3.0	.5	.0	.0
30	13.5	13.0	13.0	6.5	6.5	6.5	2.5	2.0	2.5	.5	.0	.0
31	13.5	12.5	13.0	---	---	---	2.5	2.0	2.0	.5	.0	.0
MONTH	18.0	12.5	15.5	13.0	6.5	9.5	7.0	2.0	4.5	2.0	.0	.5

TEMPERATURE (DEG. C) OF WATER: WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	.5	.0	.0	3.0	3.0	3.0	7.0	6.5	7.0	12.0	11.5	11.5
2	.0	.0	.0	3.5	3.0	3.0	7.0	7.0	7.0	12.0	11.5	12.0
3	.0	.0	.0	3.0	2.5	3.0	7.5	7.0	7.0	12.5	12.0	12.0
4	.5	.0	.0	3.5	3.0	3.0	7.5	7.0	7.5	12.5	12.5	12.5
5	.5	.0	.5	3.5	3.0	3.5	8.5	7.5	8.0	12.5	12.0	12.5
6	.5	.5	.5	3.5	3.5	3.5	8.0	7.5	8.0	12.5	12.0	12.5
7	.5	.5	.5	4.0	3.5	3.5	8.5	8.0	8.0	13.0	12.5	12.5
8	.5	.5	.5	4.0	3.5	4.0	8.5	8.0	8.5	13.0	12.5	12.5
9	.5	.5	.5	4.0	4.0	4.0	8.5	8.5	8.5	13.0	12.5	12.5
10	1.0	.5	.5	4.5	4.0	4.0	9.0	8.5	8.5	12.5	12.0	12.5
11	1.0	.5	.5	4.5	4.0	4.5	9.0	8.5	8.5	12.5	12.0	12.0
12	1.0	1.0	1.0	5.0	4.5	4.5	9.0	8.5	8.5	12.5	12.0	12.0
13	1.5	1.0	1.0	5.0	4.5	5.0	9.0	8.5	8.5	12.0	11.5	12.0
14	1.5	1.0	1.5	5.5	4.5	5.0	9.0	8.5	8.5	12.0	11.5	11.5
15	1.5	1.0	1.5	5.0	5.0	5.0	9.0	8.5	8.5			
16	1.5	1.5	1.5	5.5	5.0	5.0	9.0	8.5	9.0	11.5	11.0	11.5
17	1.5	1.5	1.5	5.5	5.0	5.0	9.5	9.0	9.0	11.5	11.0	11.5
18	1.5	1.5	1.5	5.5	5.0	5.0	9.5	9.0	9.0	11.5	11.0	11.5
19	2.0	1.5	1.5	5.5	5.0	5.5	9.5	9.0	9.0	12.0	11.5	11.5
20	2.0	1.5	2.0	6.0	5.5	5.5	9.5	9.0	9.5	12.5	11.5	12.0
21	2.0	2.0	2.0	6.0	5.5	6.0	10.0	9.0	9.5	13.0	12.5	12.5
22	2.0	2.0	2.0	6.5	6.0	6.0	10.0	9.5	10.0	13.5	13.0	13.5
23	2.0	2.0	2.0	6.5	6.0	6.0	10.0	9.5	10.0	14.0	13.5	14.0
24	2.5	2.0	2.0	6.5	6.0	6.5	10.0	9.5	10.0	14.0	13.5	13.5
25	2.5	2.0	2.5	6.5	6.0	6.5	10.0	9.5	10.0	13.5	13.5	13.5
26	3.0	2.5	2.5	7.0	6.5	6.5	10.5	9.5	10.0	13.5	13.0	13.5
27	3.0	2.5	2.5	7.0	6.5	6.5	10.5	10.0	10.5	13.5	13.0	13.0
28	3.0	3.0	3.0	7.0	6.5	6.5	11.0	10.5	11.0	13.5	13.0	13.0
29	---	---	---	7.0	6.5	6.5	11.5	11.0	11.5	13.5	13.0	13.0
30	---	---	---	7.0	6.5	6.5	12.0	11.5	11.5	13.0	13.0	13.0
31	---	---	---	7.0	6.5	6.5	---	---	---	13.0	12.5	13.0
MONTH	3.0	.0	1.5	7.0	2.5	5.0	12.0	6.5	9.0	14.0	11.0	12.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	13.0	12.5	13.0	17.0	16.5	16.5	22.5	21.5	22.0	23.0	22.0	22.5
2	13.5	13.0	13.0	17.0	16.0	16.5	23.0	21.5	22.0	23.0	22.0	22.5
3	13.5	13.0	13.5	17.0	16.0	16.5	22.5	21.5	22.0	22.5	22.0	22.0
4	14.0	13.5	13.5	17.0	16.5	16.5	23.0	21.5	22.0	22.0	21.5	22.0
5	14.0	13.5	13.5	17.5	17.0	17.0	23.0	22.0	22.5	22.5	21.5	22.0
6	13.5	13.0	13.0	18.0	17.5	17.5	23.5	22.0	22.5	22.5	21.5	22.0
7	13.0	12.5	13.0	18.5	17.5	18.0	23.0	22.0	22.0	22.5	21.5	22.0
8	13.0	12.5	13.0	19.0	18.0	18.0	22.5	22.0	22.0	22.5	21.5	22.0
9	13.5	13.0	13.5	19.0	18.0	18.5	23.0	21.5	22.5	22.0	21.0	21.5
10	14.0	13.5	14.0	19.0	18.0	18.5	23.0	22.0	22.5	21.5	21.0	21.5
11	14.5	14.0	14.0	19.5	18.5	19.0	23.0	22.5	22.5	22.0	21.0	21.5
12	15.0	14.5	15.0	19.5	18.5	19.0	23.0	22.0	22.5	22.0	21.0	21.5
13	15.5	15.0	15.0	20.0	18.5	19.0	22.5	22.0	22.5	22.0	21.0	21.5
14	15.5	15.0	15.5	20.5	19.0	19.5	23.5	22.5	22.5	22.0	21.0	21.5
15	15.5	15.0	15.5	20.5	19.0	19.5	23.5	22.5	22.5	22.0	21.0	21.5
16	15.0	14.5	15.0	20.5	19.0	20.0	23.5	22.5	23.0	22.0	21.0	21.5
17	14.5	14.5	14.5	21.0	19.5	20.0	23.5	22.5	23.0	21.5	21.0	21.5
18	15.0	14.5	14.5	21.0	20.0	20.5	23.5	22.5	22.5	22.0	21.0	21.5
19	15.0	14.5	14.5	21.0	20.0	20.5	23.0	22.5	22.5	22.0	21.0	21.5
20	15.0	14.5	15.0	21.5	20.5	21.0	23.0	22.5	22.5	22.0	21.0	21.5
21	15.5	15.0	15.0	21.5	21.0	21.0	23.0	22.5	22.5	21.5	21.0	21.0
22	16.0	15.5	15.5	22.0	20.5	21.0	23.5	22.0	23.0	21.5	21.0	21.0
23	16.5	16.0	16.0	21.5	20.5	21.0	23.5	23.0	23.0	21.5	21.0	21.0
24	17.0	16.0	16.5	22.0	20.5	21.0	23.5	22.5	23.0	21.0	20.5	21.0
25	17.0	16.0	16.5	22.0	21.0	21.5	23.5	22.5	23.0	21.0	20.5	21.0
26	17.0	16.5	17.0	22.0	21.0	21.5	23.0	22.5	23.0	21.0	20.5	21.0
27	17.5	16.5	17.0	22.5	21.5	21.5	23.0	22.5	22.5	21.0	20.0	20.5
28	17.5	17.0	17.0	22.0	21.0	21.5	23.5	22.5	22.5	20.5	20.0	20.0
29	17.0	17.0	17.0	22.0	21.0	21.5	23.0	22.5	22.5	20.5	20.0	20.5
30	17.0	16.5	17.0	22.5	21.5	22.0	22.5	22.0	22.5	20.5	20.0	20.5
31	---	---	---	22.5	21.5	22.0	23.0	21.5	22.0	---	---	---
MONTH	17.5	12.5	15.0	22.5	16.0	19.5	23.5	21.5	22.5	23.0	20.0	21.5
YEAR	23.5	.0	11.5									

SNAKE RIVER BASIN

13553200 SNAKE RIVER AT BURBANK, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO AUGUST 1979

DATE TIME	NOV 7,78 1130	MAR 20,79 1200	MAY 16,79 1030	JUN 11,79 1100	JUL 2,79 1100	AUG 30,79 0945		
TOTAL CELLS/ML	630	120	420	1000	39	15		
DIVERSITY: DIVISION	1.3	1.6	0.4	0.3	0.0	0.0		
..CLASS	1.3	1.6	0.4	0.3	0.0	0.0		
..ORDER	1.3	2.4	1.3	1.2	0.0	0.0		
...FAMILY	1.9	3.0	2.0	1.4	0.0	0.0		
....GENUS	2.6	3.3	2.6	2.2	0.9	0.0		
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	--	5 4	--	--	--	--	--
....OOCYSTACEAE								
....ANKISTRODESCHUS	72 11	--	5 4	14 3	--	--	--	--
....CHODATELLA	24 5	--	--	--	--	--	--	--
....KIRCHNERIELLA	43 7	--	5 4	--	--	--	--	--
....OOCYSTIS	--	--	--	14 3	--	--	--	--
....SCENEDESMACEAE								
....SCENEDESMUS	120# 10	--	--	--	26 1	--	--	15#100
....TETRASTRUM	120# 10	--	--	--	--	--	--	--
..VOLVOCALES								
..CHLAMYDOMONADACEAE								
..CHLAMYDOMONAS	--	--	10 9	--	39 2	--	--	--
CHRYSOPHYTA								
..RACILLARIOPHYCEAE								
..CENTRALES								
..COSCINODISCACEAE								
....CYCLOTELLA	190# 30	--	25# 22	100# 24	710# 38	--	--	--
....MELOSIRA	--	--	--	72# 17	420# 23	26# 67	--	--
....STEPHANODISCUS	--	--	5 4	14 3	--	13# 33	--	--
..PENNALES								
....ACHNANTHACEAE								
....COCCONEIS	--	--	--	--	13 1	--	--	--
....CYMBELLACEAE	--	--	--	--	--	--	--	--
....CYMBELLA	--	--	5 4	--	--	--	--	--
....FRAGILARIACEAE								
....ASTERIONELLA	--	--	25# 22	120# 28	150 8	--	--	--
....FRAGILARIA	--	--	--	--	410# 22	--	--	--
....NAVICULACEAE								
....NAVICULA	--	--	--	--	51 3	--	--	--
....NITZSCHACEAE								
....NITZSCHIA	--	--	--	29 7	--	--	--	--
....SURIHALLACEAE								
....SURIIRELLA	--	--	10 9	--	--	--	--	--
....TABELLARIACEAE								
....TABELLARIA	--	--	--	58 14	--	--	--	--
CRYPTOPHYTA (CRYPTOMONADS)								
..CRYPTOPHYCEAE								
..CRYPTOMONADALES								
..CRYPTOCHRYSIACEAE								
....CHROOMONAS	72 11	--	--	--	--	--	--	--
..CRYPTOMONADACEAE								
....CRYPTOMONAS	--	--	5 4	--	--	--	--	--
EUGLENOPHYTA (EUGLENOIDS)								
..EUGLENOPHYCEAE								
..EUGLENALES								
..EUGLENACEAE								
....EUGLENA	--	--	10 9	--	13 1	--	--	--
PYRRHOPHYTA (FINE ALGAE)								
..DINOPHYCEAE								
..PERIDINIALES								
..GLENODINIACEAE								
....GLENODINIUM	--	--	5 4	--	--	--	--	--

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
 * - OBSERVED ORGANISM; MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

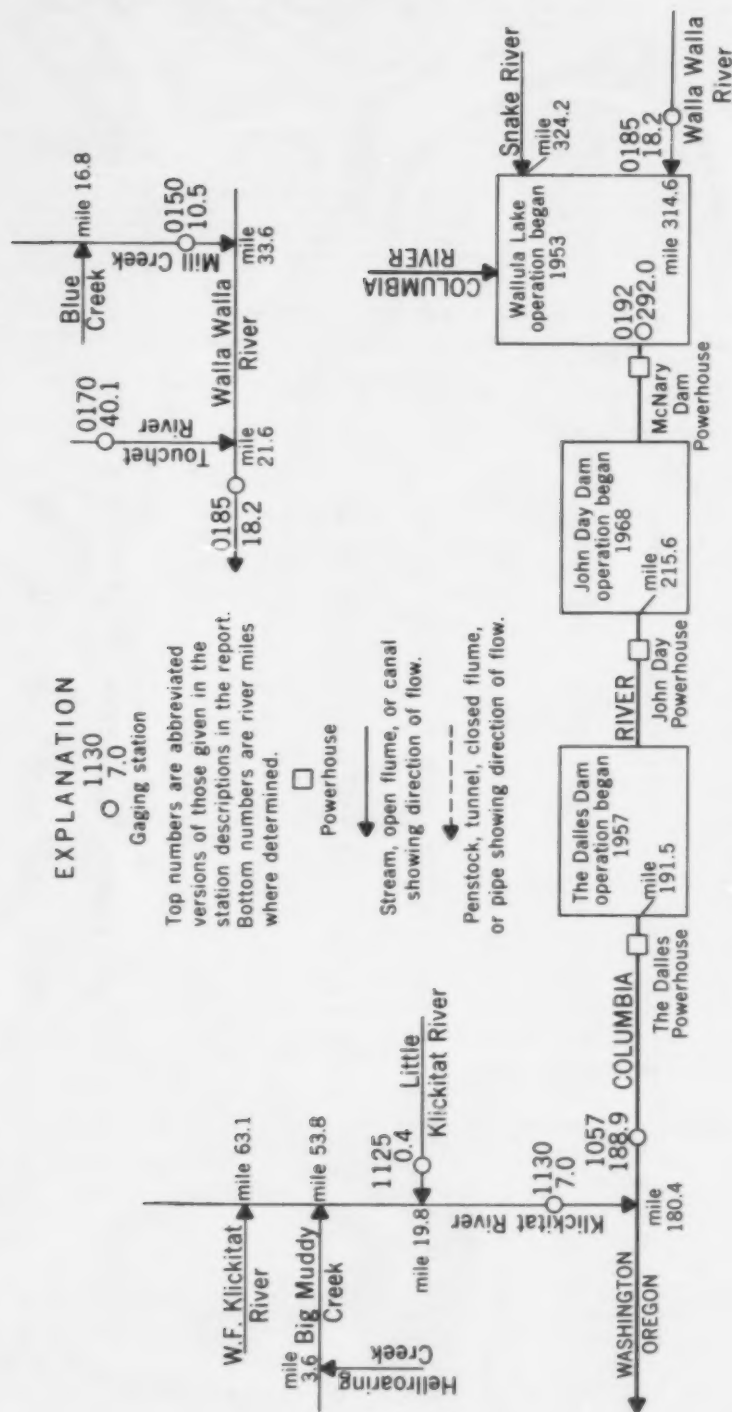


Figure 18. Gaging stations in Columbia River basin between Wallula Lake and Klickitat River.

LOCATION.--Lat 46°04'35", long 118°16'21", in NE¼NW¼ sec.23, T.7 N., R.36 E., Walla Walla County, Hydrologic Unit 17070102, on left bank, 200 ft (61 m) downstream from diversion dam, 1.5 mi (2.4 km) east of Walla Walla, and at mile 10.5 (16.9 km).

PERIOD OF RECORD.--April 1941 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,165.49 ft (355.241 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). April 1941 to June 11, 1941, nonrecording gage and June 11, 1941, to Jan. 22, 1957, water-stage recorder, at sites 0.8 mi (1.3 km) downstream at different datum.

COOPERATION.--Gage-height record and 5 discharge measurements furnished by the Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,080 ft³/s (30.6 m³/s) Feb. 13, gage height, 4.18 ft (1.274 m); minimum daily, 0.07 ft³/s (0.002 m³/s) Nov. 4, 5.

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.37	.10	121	34	30	244	86	251	25	.60	1.9	1.2
2	.29	.11	74	32	32	184	90	230	23	3.5	1.8	1.1
3	.30	.10	50	31	50	140	118	202	21	2.9	1.5	.75
4	.28	.07	180	30	90	135	166	215	15	1.6	1.6	1.0
5	.29	.07	210	29	60	291	245	294	8.0	1.4	1.5	1.2
6	.32	.10	116	28	70	634	312	395	11	1.4	1.6	.90
7	.32	.10	74	27	160	826	460	332	5.5	1.1	1.4	1.1
8	.42	6.8	53	27	170	685	385	263	3.1	1.2	1.3	1.6
9	.59	15	50	30	195	432	361	214	3.8	1.2	1.3	1.4
10	.52	12	46	34	251	287	357	180	2.9	1.8	1.3	.94
11	.29	11	217	40	464	203	324	146	2.7	.97	1.4	1.1
12	.35	9.0	194	70	596	245	292	124	3.0	1.5	1.5	.90
13	.35	2.4	119	60	934	224	311	188	3.5	2.3	1.5	.76
14	.31	2.0	88	75	593	201	293	83	1.9	2.1	.92	.76
15	.15	2.0	69	73	359	280	251	90	.60	2.0	.42	.87
16	.15	2.0	54	70	242	150	218	134	.60	1.9	.53	.81
17	.08	1.6	46	68	180	21	213	111	17	2.0	.46	.74
18	.08	1.5	42	63	157	12	189	97	15	2.0	.48	.81
19	.08	1.6	34	44	155	57	160	91	1.0	1.9	.50	.82
20	.08	1.7	28	42	164	71	128	86	1.1	1.8	.66	.77
21	.08	1.5	26	45	144	46	113	81	.94	1.7	.52	.63
22	.08	1.5	25	40	125	41	112	76	.85	1.6	.84	.54
23	.08	1.6	28	41	114	40	132	64	.82	1.7	.71	.83
24	.08	1.5	56	43	107	34	146	74	.82	1.6	.86	.83
25	.08	1.5	66	40	146	40	143	66	.94	1.7	.93	.44
26	.13	1.5	76	39	258	76	142	62	.96	1.9	.99	.56
27	.11	1.5	63	40	342	115	165	61	.86	1.7	.99	.64
28	.11	7.3	50	40	311	124	208	51	1.1	1.6	1.4	.63
29	.10	10	34	37	---	128	280	36	.71	1.7	1.0	.82
30	.10	48	38	33	---	117	280	28	.60	2.0	.96	.69
31	.10	---	36	31	---	101	---	26	---	2.0	1.2	---
TOTAL	6.68	145.15	2383	1356	6479	6111	6700	4291	173.30	53.57	33.97	26.14
MEAN	.22	4.64	76.9	43.7	231	197	223	138	5.78	1.73	1.10	.87
MAX	.59	15	217	80	934	826	460	395	5.5	3.5	1.9	1.6
MIN	.08	.07	25	27	30	12	26	.60	.60	.42	.46	.46
AC-FT	13	288	4738	2690	12850	12120	13290	8510	344	108	67	52
CAL YR 1978 TOTAL	21931.65							43500				
MIN YR 1979 TOTAL	27756.81							55060				

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LOCATION:--Lat 46°16'28", long 118°13'15", on line between secs. 7 and 8, T. 9 N., R. 37 E., Walla Walla County, Hydrologic Unit 17070102, on right bank just downstream from bridge on State Highway 124, 0.4 mi (0.6 km) southeast of Bolles, 2.9 mi (4.7 km) downstream from Coppel Creek, and at mile 40.1 (64.5 km).

PERIOD OF RECORD.--February 1924 to October 1929, April 1951 to current year. Monthly discharge only for February and March 1929, published in WSP 1318. Chemical analyses October 1973 to September 1975, sediment records July 1962 to September 1965 (partial-record station).

GAGE.--Nonrecording gage. Altitude of gage is 1,150 ft (351 m), from topographic map. Prior to Oct. 5, 1929, water-stage recorder at site 0.5 mi (0.8 km) upstream at different datum. Apr. 1 to May 6, 1951, nonrecording gage, and May 7, 1951, to Sept. 30, 1968, water-stage recorder and wire-weight gage at present site and datum.

AVERAGE DISCHARGE.--33 years (water years 1925-29, 1952-79), 231 ft³/s (6.542 m³/s) 167,400 acre-ft/yr (206 hm³/yr).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s) and maximum (*):

EXTREMES FOR CURRENT YEAR.--FEAR DISCHARGES WOULD HAVE TO BE...

a Backwater from ice.

Minimum daily discharge 24 ft³/s (0.68 m³/s) Aug. 6-8, 10, 12.

DAT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	57	199	40	50	491	296	513	129	60	27	36
2	49	57	137	35	55	400	297	497	119	74	28	36
3	49	57	105	30	60	354	300	463	113	60	26	49
4	48	56	106	29	75	500	316	504	110	55	20	42
5	49	66	256	29	100	742	367	631	102	51	26	38
6	49	50	168	28	230	1030	668	639	102	51	24	34
7	49	58	119	28	1000	1210	732	545	100	49	24	32
8	49	58	131	33	555	1000	668	669	95	51	24	32
9	48	69	134	40	515	737	713	604	88	51	26	34
10	46	67	122	50	554	577	601	356	83	51	24	35
11	46	69	444	70	875	491	653	321	83	48	26	32
12	48	76	432	90	1060	455	616	307	78	48	24	31
13	49	90	269	95	1030	439	691	301	74	46	26	32
14	51	76	215	90	1130	466	616	303	74	42	36	35
15	51	74	191	86	702	398	556	315	74	36	40	32
16	51	67	158	85	519	699	510	330	83	35	44	30
17	49	62	144	83	404	492	493	300	110	35	42	30
18	51	62	137	82	395	427	450	209	102	35	40	32
19	51	64	116	80	356	375	400	269	98	34	38	30
20	51	71	168	83	304	341	356	254	85	34	38	30
21	51	62	166	86	294	316	325	247	78	32	36	30
22	49	62	104	80	263	293	314	241	76	32	36	30
23	49	62	104	75	240	274	372	255	74	34	34	33
24	49	62	132	75	240	244	303	256	69	32	35	35
25	51	62	157	73	406	269	381	242	67	30	31	35
26	51	62	141	70	621	271	361	224	58	30	33	35
27	49	60	132	68	647	308	385	215	57	28	32	36
28	51	80	110	64	503	300	430	195	57	29	31	36
29	55	88	95	60	---	375	479	175	58	28	30	37
30	57	120	75	55	---	347	493	154	64	27	33	37
31	57	---	50	50	---	378	---	140	---	28	39	---
TOTAL	1592	2038	4987	1942	14429	14781	14112	10362	2555	1277	905	1018
MEAN	50.1	67.9	161	62.6	522	477	470	334	85.2	41.2	31.8	33.4
MAX	57	120	444	95	1030	1210	732	639	120	74	46	42
MIN	46	57	50	28	50	284	296	140	57	27	24	20
AC-FT	3080	4060	9090	3850	29020	29320	27940	20593	5070	2530	1950	2020

CAL	VR	1970	TOTAL	59031	MEAN	164	MAX	670	MIN	33	AC-FT	118700
WTR	VR	1979	TOTAL	78238	MEAN	192	MAX	1638	MIN	24	AC-FT	139300

WALLA WALLA RIVER BASIN

14017600 TOUCHET RIVER AT TOUCHET, WA

LOCATION.--Lat 46°02'29", Long 118°40'59", in NE¼SE¼ sec.33, T.7 N., R.33 E., Walla Walla County, Hydrologic Unit 17070102, at U.S. Highway 410 bridge, 0.5 mi (0.8 km) upstream from mouth, and 0.6 mi (1.0 km) west of Touchet.

DRAINAGE AREA.--About 750 mi² (1,940 km²).

PERIOD OF RECORD.--Water years 1972, 1974-75, 1977 to current year.

REMARKS.--Water discharge from rating; discharge value is good. Prior to October 1973 published as 14017500.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)
OCT - 1978										
24...	1215	14	210	7.6	11.6	25	15	10.7	.35	.00
NOV										
29...	1245	116	105	7.8	2.9	25	40	13.0	.41	.01
DEC										
29...	1145	--	125	7.7	1.0	10	12	12.7	.80	.01
FEB - 1979										
22...	1245	336	150	8.2	5.0	55	170	10.6	1.7	.02
MAR										
20...	1215	368	145	8.3	9.8	15	45	10.6	1.1	.02
APR										
25...	1140	382	170	7.4	14.3	5	24	9.7	.48	.02
MAY										
22...	1445	245	150	7.7	21.0	20	25	7.2	.01	.02
JUN										
19...	1430	76	165	8.0	19.5	5	35	8.6	.31	.02
JUL										
24...	1340	.41	190	7.6	23.6	10	20	8.5	.27	.06
AUG										
28...	1325	2.8	280	7.3	22.1	10	30	8.7	.19	.02
SEP										
25...	1330	.46	490	7.7	18.2	20	20	8.4	.62	.06

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS PO4)
OCT - 1978									
24...	.35	.03	.30	.33	.68	3.0	.120	.08	.25
NOV									
29...	.42	.01	.23	.24	.66	2.9	.120	.14	.43
DEC									
29...	.01	.04	.33	.37	1.2	5.2	.230	.06	.18
FEB - 1979									
22...	1.7	.09	.37	.46	2.2	9.6	.110	.10	.31
MAR									
20...	1.1	.01	.26	.27	1.4	6.1	.090	.06	.18
APR									
25...	.50	.01	.20	.21	.71	3.1	.060	.07	.21
MAY									
22...	.93	.04	.32	.36	.39	1.7	.060	.09	.28
JUN									
19...	.33	.04	.11	.15	.48	2.1	.080	.02	.06
JUL									
24...	.33	.03	.01	.04	.37	1.6	.210	.07	.21
AUG									
28...	.21	.04	.19	.23	.44	1.9	.180	.16	.49
SEP									
25...	.68	.05	1.2	1.2	1.9	8.3	.060	.03	.09

WALLA WALLA RIVER BASIN

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14018500 WALLA WALLA RIVER NEAR TOUCHET, WA

LOCATION.--Lat 46°01'40", long 118°43'43", in NWSE4 sec.6, T.6 N., R.33 E., Walla Walla County, Hydrologic Unit 17070102, on left bank 0.8 mi (1.3 km) upstream from Gardena Creek, 2.8 mi (4.5 km) southwest of Touchet, 3.4 mi (5.5 km) downstream from Touchet River, and at mile 18.2 (29.3 km).

DRAINAGE AREA.--1,057 mi² (4,292 km²).

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 405 ft (123 m), from topographic map. Prior to Nov. 27, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period Dec. 28 to Feb. 6 which are poor. Many diversions above station for irrigation.

AVERAGE DISCHARGE.--28 years, 593 ft³/s (16.79 m³/s) 429,000 acre-ft/yr (530 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,400 ft³/s (946 m³/s) Dec. 27, 1964, gage height, 18.90 ft (5.761 m), from rating curve extended above 15,000 ft³/s (425 m³/s) on basis of slope-area measurement of peak flow; no flow July 30 to Aug. 8, Aug. 12, 13, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft³/s (85.0 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 7	1300	*11,400 323	*12.93 3.941	Mar. 7	2400	5,820 168	8.81 2.685
Feb. 13	0800	7,100 201	10.94 3.335				

Minimum daily discharge, 0.82 ft³/s (0.023 m³/s) Aug. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	47	655	220	220	1400	856	1440	132	20	5.4	10
2	74	49	645	220	210	1240	799	1360	115	61	3.6	15
3	69	48	446	210	250	1080	827	1270	108	59	.91	16
4	65	50	486	210	270	1100	832	1310	95	41	1.6	20
5	58	58	1280	200	400	1700	1870	1720	85	34	.82	25
6	57	59	775	200	900	2010	1250	2160	77	27	1.6	15
7	53	54	542	200	7900	3510	2050	1870	82	29	3.2	10
8	49	52	478	220	3140	3450	1970	1500	78	23	1.8	7.2
9	46	54	582	270	2770	2380	1880	1320	70	20	1.3	6.1
10	40	74	498	300	2720	1780	1870	1130	60	22	1.9	7.9
11	27	81	780	350	2550	1440	1760	996	51	16	1.6	8.0
12	25	131	1550	380	3190	1390	1840	901	46	12	1.2	8.7
13	25	160	902	400	6060	1310	1770	856	40	12	3.0	7.4
14	25	160	690	390	3760	1250	1690	827	40	12	8.2	7.0
15	29	168	574	380	2270	1200	1560	818	42	15	1.9	7.5
16	29	193	494	360	1640	1330	1340	861	41	14	20	6.9
17	28	208	442	390	1310	1390	1330	818	51	10	16	8.0
18	27	160	426	340	1140	1190	1230	722	122	7.8	11	5.8
19	30	146	393	320	1190	1070	1080	654	132	7.1	8.9	5.8
20	28	208	424	320	1120	1030	932	618	95	7.4	9.3	4.5
21	25	225	429	340	1060	946	832	583	75	7.1	12	3.9
22	25	222	423	470	974	881	794	560	65	5.7	11	4.5
23	25	224	407	490	901	799	886	537	54	5.7	9.8	6.6
24	24	224	453	335	876	758	1020	533	48	4.5	10	6.0
25	26	223	583	330	1020	767	1030	475	48	4.8	10	7.2
26	31	223	591	330	1560	770	985	423	46	6.4	11	5.4
27	31	221	520	320	1810	871	1060	384	35	5.0	10	4.7
28	31	254	450	310	1730	1020	1200	330	26	3.2	7.9	4.5
29	35	310	350	300	---	1100	1440	284	22	6.4	8.4	4.8
30	34	388	270	240	---	1030	1500	227	19	5.4	7.8	3.5
31	42	---	230	230	---	927	---	170	---	6.8	6.6	---
TOTAL	1195	4684	17608	9495	52941	42947	38473	27673	2002	518.3	233.03	263.5
MEAN	38.5	156	568	306	1691	1385	1262	893	66.7	16.7	7.52	8.70
MAX	77	388	1550	470	7900	3510	2850	2160	132	61	28	29
MIN	24	47	230	200	210	758	794	178	19	3.2	.82	3.5
AC-FT	2370	9290	34930	18810	105000	85190	76310	54890	3970	1030	462	523

CAL YR 1978 TOTAL 176056.30 MEAN 482 MAX 2320 MIN 2.4 AC-FT 349200
 WTH YR 1979 TOTAL 198032.83 MEAN 543 MAX 7900 MIN .82 AC-FT 392000

WALLA WALLA RIVER BASIN

14018600 WALLA WALLA RIVER BELOW WARM SPRINGS CREEK NEAR TOUCHET, WA

LOCATION.--Lat 46°02'10", long 118°45'55", in SE¼SE¼ sec.35, T.7 N., R.32 E., Walla Walla County, Hydrologic Unit 17070102, at county road bridge, 0.9 mi (1.4 km) downstream from Warm Springs Canyon, 2.5 mi (4.0 km) downstream from gaging station, 3.7 mi (6.0 km) west of Touchet, and at mile 15.7 (25.3 km).

DRAINAGE AREA.--About 1,690 mi² (4,380 km²).

PERIOD OF RECORD.--Water years 1959 to 1971, 1974 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: July 1959 to June 1970.

SEDIMENT RECORDS: October 1962 to June 1970.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is poor. Records collected prior to October 1973 published as 14018500 "near Touchet".

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN- DIS- SOLVED (MG/L)	NITRO- GEN- NITRATE TOTAL (MG/L AS N)	NITRO- GEN- NITRITE TOTAL (MG/L AS N)
OCT * 1978										
24...	1245	24	400	7.9	12.2	10	15	9.9	.68	.01
NOV										
29...	1315	313	425	8.5	3.8	40	32	12.8	.92	.01
DEC										
20...	1215	412	200	8.1	2.2	20	10	13.0	1.3	.02
FEB * 1979										
22...	1300	985	105	7.6	5.6	40	30	8.8	1.8	.02
MAR										
20...	1240	1040	100	8.1	8.7	35	33	11.3	1.3	.04
APR										
25...	1220	1040	210	7.4	12.2	20	18	9.3	.49	.02
MAY										
22...	1510	571	200	7.5	21.0	5	18	7.8	.36	.02
JUN										
19...	1520	127	210	7.9	19.0	5	30	8.2	.46	.04
JUL										
24...	1410	4.0	285	7.6	26.7	5	10	7.8	.00	.02
AUG										
28...	1355	8.2	500	8.5	23.6	25	20	8.1	.00	.02
SEP										
25...	1345	6.8	775	8.1	18.8	10	40	8.3	.11	.04

DATE	NITRO- GEN- NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN- AMMONIA TOTAL (MG/L AS N)	NITRO- GEN- ORGANIC TOTAL (MG/L AS N)	NITRO- GEN-AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN- TOTAL (MG/L AS NO3)	NITRO- GEN- TOTAL (MG/L AS NO3)	PHOS- PHOS- TOTAL (MG/L AS P)	PHOS- PHOS- TOTAL (MG/L AS P)	PHOS- PHOS- TOTAL (MG/L AS P)	PHOS- PHOS- TOTAL (MG/L AS P)
OCT * 1978										
24...	.01	.01	.76	.79	1.6	7.1	.180	.07	.21	
NOV										
29...	.93	.08	.67	.75	1.7	7.4	.290	.25	.77	
DEC										
20...	1.3	.07	.37	.44	1.7	7.7	.230	.09	.28	
FEB * 1979										
22...	1.8	.11	.32	.43	2.2	9.9	.140	.14	.43	
MAR										
20...	1.3	.04	.21	.25	1.6	6.9	.100	.07	.21	
APR										
25...	.51	.03	.41	.44	.95	4.2	.210	.08	.25	
MAY										
22...	.38	.02	.17	.19	.57	2.5	.070	.10	.31	
JUN										
19...	.50	.06	.32	.40	.88	3.9	.130	.03	.09	
JUL										
24...	.02	.16	.04	1.8	1.8	8.5	.070	.01	.03	
AUG										
28...	.02	.08	.76	.76	.78	3.5	.110	.05	.15	
SEP										
25...	.15	.02	1.7	1.7	1.9	8.2	.100	.01	.03	

COLUMBIA RIVER MAIN STEM

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14019200 COLUMBIA RIVER AT MCHARY DAM, NEAR UMATILLA, OR

LOCATION.--Lat 45°54'05", long 119°17'45", in NW 1/4 sec. 10, T.5 N., R.28 E., Umatilla County, Hydrologic Unit 17070101, in powerhouse forebay between generator units 2 and 3 at McHary Dam, 2.5 mi (4.0 km) northwest of Umatilla, 3.0 mi (4.8 km) upstream from Umatilla River, and at mile 292.0 (469.6 km).

DRAINAGE AREA.--214,000 mi^2 (554,300 km^2), approximately.

PERIOD OF RECORD.--October 1930 to current year. Gage-height records collected at site at Umatilla since 1976 are contained in reports of U.S. Weather Bureau. Prior to October 1966, published as "below McHary Dam."

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1966, at site 1.2 mi (1.9 km) downstream (tailwater) at 240.04 ft (73.164 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records computed from power output and flow over spillway at McHary Dam. Considerable regulation by many reservoirs upstream. Diurnal fluctuation caused by powerplant and gates at McHary Dam since beginning of operation in April 1953. Many diversions for irrigation above station.

COOPERATION.--Daily discharge and midnight forebay elevation records furnished by Corps of Engineers. Two discharge measurements made and records revised by Geological Survey.

AVERAGE DISCHARGE.--29 years, 183,500 ft^3/s (5,200 m^3/s), 132,900,000 acre-ft/yr (164 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 818,000 ft^3/s (23,200 m^3/s) June 2, 1956, elevation, 277.01 ft (84.433 m), at site 1.2 mi (1.9 km) downstream; maximum daily discharge, 798,000 ft^3/s (22,600 m^3/s) June 2, 1956; minimum daily discharge, 39,500 ft^3/s (1,120 m^3/s) July 10, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 5, 1894, reached an elevation of 296.2 ft (90.62 m), and that of May 31, 1948, reached an elevation of about 280 ft (85.3 m), both at site 1.2 mi (1.9 km) downstream from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 293,000 ft^3/s (8,300 m^3/s) May 26; maximum midnight forebay elevation, 340.1 ft (103.66 m) May 12; minimum daily discharge, 58,100 ft^3/s (1,650 m^3/s) July 15; minimum midnight forebay elevation, 335.6 ft (102.29 m) July 20.

DISCHARGE, STREAM (CUBIC FEET PER SECOND), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119000	140000	137000	158000	172000	172000	155000	174000	228000	89700	127000	98300
2	139000	134000	125000	184000	141000	145000	155000	191000	197000	148000	131000	84200
3	149000	146000	105000	192000	147000	146000	176000	293000	173000	152000	131000	89100
4	160000	133000	149000	180000	129000	189000	201000	193000	179000	98200	99200	94500
5	133000	106000	147000	195000	148000	120000	135000	216000	213000	155000	87200	111000
6	143000	145000	158000	157000	154000	170000	173000	224000	228000	116000	98500	116000
7	109000	138000	176000	134000	158000	141000	159000	227000	205000	119000	138000	107000
8	110000	123000	168000	183000	168000	158000	137000	224000	193000	83100	111000	98900
9	141000	134000	123000	171000	153000	153000	195000	227000	177000	147000	129000	83200
10	158000	144000	106000	184000	135000	150000	195000	224000	143000	142000	128000	714000
11	143000	137000	158000	128000	120000	127000	183000	223000	175000	132000	99700	108000
12	134000	112000	155000	148000	165000	123000	185000	211000	191000	135000	41800	116000
13	101000	161000	150000	134000	173000	153000	175000	224000	197000	109000	110000	187000
14	106000	134000	140000	122000	163000	128000	167000	238000	195000	115000	116000	184000
15	91200	155000	157000	142000	169000	154000	141000	245000	201000	58100	107000	88200
16	115000	186000	145000	160000	172000	171000	158000	219000	185000	136000	107000	76200
17	119000	162000	120000	162000	135000	174000	147000	233000	156000	129000	101000	111000
18	126000	118000	140000	169000	129000	141000	173000	244000	147000	167000	82200	93600
19	128000	131000	129000	164000	126000	155000	181000	246000	179000	134000	77100	94700
20	135000	170000	137000	147000	162000	149000	191000	232000	167000	125000	106000	96300
21	132000	141000	124000	101000	166000	163000	133000	221000	164000	88400	109000	99200
22	97800	152000	130000	175000	173000	176000	118000	219000	152000	93000	114000	94300
23	126000	124000	123000	194000	174000	153000	158000	263000	134000	131000	119000	69200
24	119000	154000	108000	167000	143000	148000	175000	293000	105000	129000	119000	98600
25	132000	125000	108000	162000	105000	139000	154000	274000	157000	131000	109000	97700
26	135000	93800	124000	185000	181000	169000	156000	254000	161000	146000	70600	95800
27	113000	170000	163000	127000	164000	197000	143000	255000	183000	130000	107000	99700
28	111000	149000	171000	114000	175000	177000	153000	254000	205000	98100	128000	94900
29	107000	140000	190000	169000	---	215000	132000	252000	170000	84200	122000	88200
30	126000	147000	184000	180000	---	164000	174000	240000	135000	131000	108000	97600
31	133000	---	153000	193000	---	188000	---	244000	---	127000	115000	---
TOTAL	3845000	4200000	4395000	4985000	4318000	4828000	4954000	7169000	5265000	3755000	3369300	2881200
MEAN	124000	134000	141800	160800	139200	155700	161000	231300	175500	121100	108700	95370
MAX	160000	170000	190000	194000	181000	215000	201000	293000	228000	167000	138000	116000
MIN	91200	93800	105000	101000	105000	109000	116000	176000	105000	58100	70600	67600
AC-FT	7726000	8332000	8717000	9688000	8565000	9576000	9628000	14220000	10440000	7449000	6483000	5475000
CAL YR 1978 TOTAL	63431200	MEAN	173800	MAX	317000	MIN	88000	AC-FT	125000000			
WYR YR 1979 TOTAL	53895400	MEAN	147700	MAX	293000	MIN	58100	AC-FT	106400000			

COLUMBIA RIVER MAIN STEM

14019150 COLUMBIA RIVER AT UMATILLA, OR

LOCATION---Lat 45°55'53", long 119°19'39", in SW¼NW¼ sec. 9, T.5 N., R.28 E., Umatilla County, Hydrologic Unit 17070101, near span on upstream side of bridge at Umatilla, and at mile 290.5 (467.4 km).

DRAINAGE AREA---214,000 mi² (554,300 km²), approximately.

PERIOD OF RECORD---Water years 1975 to 1979 (discontinued).

PERIOD OF DAILY RECORD---

WATER TEMPERATURES: October 1974 to September 1979 (discontinued).

INSTRUMENTATION---Temperature recorder since October 1974.

EXTREMES FOR PERIOD OF DAILY RECORD---

WATER TEMPERATURES: Maximum, 22.5°C Aug. 16-17, 1977; minimum, 0°C Jan. 31 to Feb. 9, 1979.

EXTREMES FOR CURRENT YEAR---

WATER TEMPERATURES: Maximum, 21.5°C Aug. 12, 21-23, 29, 30; minimum, 0°C Jan. 31 to Feb. 9.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN- DIS- SOLVED (MG/L)	OXYGEN DEMAND- CHEM- ICAL (LOW LEVEL) (MG/L)	OXYGEN DEMAND- CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM- FECAL 0.7 UN-WP (COLS./ 100 ML)	STREP- TOCOCCI FECAL KF AGAR (COLS./ 100 ML)	SILICA- DIS- SOLVED (MG/L AS SiO2)
OCT - 1978											
20...	0900	135000	160	8.0	15.2	10.0	46	--	K3	K5	6.6
NOV											
07...	0830	130000	171	8.2	11.5	10.9	--	--	K7	K1	8.2
DEC											
08...	0830	148000	204	7.6	5.9	11.4	--	--	K6	K96	9.3
FEB - 1979											
16...	1030	172000	244	7.9	1.7	13.8	--	--	K19	1100	12
MAR											
14...	1000	128000	236	8.1	4.6	13.1	--	20	K4	K7	13
APR											
05...	0900	135000	186	8.4	6.5	13.2	--	--	K13	K8	9.2
MAY											
10...	0730	224000	163	8.5	11.9	12.5	--	--	K2	K4	9.4
JUN											
06...	1030	228000	107	7.7	15.2	10.2	--	--	K3	K1	5.5
JUL											
19...	2130	134000	136	--	20.0	8.5	--	--	K7	K3	4.4
AUG											
22...	0900	114000	153	8.4	21.5	8.6	--	--	K4	K1	4.0
SEP											
27...	0700	90700	170	8.0	19.9	9.0	--	8	K2	K1	6.2

DATE	SOLIDS- RESIDUE AT 100 DEG. C DIS- SOLVED (MG/L)	SOLIDS- DIS- SOLVED (TONS PER AC-FT)	SOLIDS- DIS- SOLVED (TONS PER DAY)	SOLIDS- RESIDUE AT 105 DEG. C SUS- PENDED (MG/L)	NITRO- GEN- NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN- AMMONIA TOTAL (MG/L AS N)	NITRO- GEN- ORGANIC TOTAL (MG/L AS N)	NITRO- GEN- TOTAL (MG/L AS N)	NITRO- GEN- TOTAL (MG/L AS NO3)	PHOS- PHORUS- TOTAL (MG/L AS P)	ARSENIC TOTAL (MG/L AS AS)
OCT - 1978											
20...	90	.12	32000	14	.13	.02	.25	.40	1.8	.010	1
NOV											
07...	100	.14	35100	2	.21	.08	.33	.62	2.7	.030	--
DEC											
08...	119	.16	34000	23	.29	.01	.13	.43	1.9	.000	2
FEB - 1979											
16...	139	.19	64600	80	.50	.08	.40	.98	4.3	.170	3
MAR											
14...	134	.18	46300	14	.84	.03	.40	1.3	5.6	.080	2
APR											
05...	94	.13	35700	13	.37	.01	.26	.64	2.8	.040	1
MAY											
10...	100	.14	60500	19	.14	.05	.30	.49	2.2	.050	1
JUN											
06...	72	.10	44300	13	.05	.01	.50	.65	2.9	.030	1
JUL											
19...	74	.10	26000	1	.02	--	--	--	--	.040	3
AUG											
22...	80	.12	26500	0	.02	.02	.19	.23	1.8	.020	1
SEP											
27...	96	.13	25000	7	.08	.06	.42	.56	2.5	.030	1

COLUMBIA RIVER MAIN STEM
14019250 COLUMBIA RIVER AT UMATILLA, OR--Continued

WATER QUALITY DATA

DATE	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER TOTAL RECOV- ERABLE (UG/L AS CU)	IRON TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD TOTAL RECOV- ERABLE (UG/L AS PB)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM TOTAL RECOV- ERABLE (UG/L AS SE)	ZINC TOTAL RECOV- ERABLE (UG/L AS ZN)	CARBON ORGANIC TOTAL (MG/L AS C)	CHLORO- PHYLL A PHYTO- PLANK- TON UNCORR. (UG/L)	CHLORO- PHYLL B PHYTO- PLANK- TON UNCORR. (UG/L)
OCT * 1978	--	20	23	390	--	.0	0	60	2.0	4.16	.000
20...	--							30	--	.000	.000
NOV											
07...	2	0	14	300	23	--	--	50	1.7	2.35	.004
DEC											
08...	3	10	20	400	12	.0	0	170	4.5	.700	.000
FEB * 1979											
10...	9	0	50	4200	42	.1	0	40	2.0	3.16	.290
MAR											
14...	2	10	13	700	10	.1	0	30	2.3	3.59	.070
APR											
05...	5	10	17	470	12	.1	0	30	3.0	6.50	.000
MAY											
10...	1	0	14	520	9	.0	0	30	2.0	19.6	2.31
JUN											
06...	1	10	5	400	13	.1	0	40	2.9	--	--
JUL											
19...	1	0	20	170	9	.0	0	0	2.2	3.70	.000
AUG											
24...	1	20	0	100	0	.1	0	10	2.4	--	--
SEP											
27...	0	0	1	140	3	.5	0				

DATE	TIME	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA)	MAGNE- SIUM TOTAL RECOV- ERABLE (MG/L AS MG)	SODIUM TOTAL RECOV- ERABLE (MG/L AS NA)	POTAS- SIUM TOTAL RECOV- ERABLE (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)
OCT * 1978							
20...	0900	17	4.2	5.0	1.1	74	0
APR * 1979							
05...	0900	22	5.0	7.2	.9	83	0
JUL							
19...	2130	15	3.0	3.0	.9	57	--

DATE	ALKA- LINIT (MG/L AS CaCO3)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE DIS- SOLVED (MG/L AS CL)	OIL AND GREASE (MG/L)	OIL AND GREASE TOTAL RECOV- GRAVI- METRIC (MG/L)
OCT * 1978						
20...	61	1.2	12	3.0	0	--
APR * 1979						
05...	68	.5	15	3.9	--	0
JUL						
19...	47	--	14	2.1	--	0

COLUMBIA RIVER MAIN STEM

14019250 COLUMBIA RIVER AT UNATILLA, OR--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	10.0	17.5	17.5	12.5	12.0	12.5	7.0	7.0	7.0	---	---	---
2	17.5	17.5	17.5	12.0	12.0	12.0	7.0	7.0	7.0	---	---	---
3	17.5	17.0	17.0	12.0	12.0	12.0	7.0	7.0	7.0	---	---	---
4	17.0	16.5	17.0	12.0	12.0	12.0	7.0	7.0	7.0	---	---	---
5	16.5	16.5	16.5	12.0	12.0	12.0	7.0	7.0	7.0	---	---	---
6	17.0	16.5	16.5	12.0	11.5	11.5	7.0	7.0	7.0	---	---	---
7	17.0	17.0	17.0	11.5	11.5	11.5	7.0	6.5	6.5	---	---	---
8	17.0	17.0	17.0	11.5	11.5	11.5	6.5	6.0	6.0	---	---	---
9	17.0	16.5	17.0	11.5	11.0	11.0	6.0	6.0	6.0	---	---	---
10	16.5	16.5	16.5	11.0	10.5	11.0	6.0	5.5	5.5	---	---	---
11	16.5	16.5	16.5	10.5	10.0	10.0	5.5	5.0	5.0	---	---	---
12	16.5	16.0	16.0	10.0	9.5	10.0	5.5	5.0	5.5	---	---	---
13	16.0	16.0	16.0	9.5	8.5	9.0	5.0	5.0	5.0	---	---	---
14	16.0	15.5	16.0	8.5	8.5	8.5	5.0	5.0	5.0	---	---	---
15	16.0	15.5	15.5	8.5	8.5	8.5	5.0	5.0	5.0	---	---	---
16	15.5	15.5	15.5	8.5	8.5	8.5	5.0	5.0	5.0	.5	.5	.5
17	15.5	15.0	15.0	8.5	8.5	8.5	5.0	4.5	4.5	.5	.5	.5
18	15.0	15.0	15.0	9.0	8.5	8.5	4.5	4.5	4.5	.5	.5	.5
19	15.0	15.0	15.0	8.5	8.0	8.5	4.5	4.5	4.5	.5	.5	.5
20	15.0	15.0	15.0	8.0	7.5	8.0	4.5	4.5	4.5	1.0	.5	.5
21	15.0	15.0	15.0	7.5	7.0	7.5	4.5	4.0	4.5	1.0	.5	1.0
22	15.0	15.0	15.0	7.0	6.5	7.0	4.5	4.5	4.5	1.0	.5	1.0
23	15.0	14.5	15.0	6.5	6.5	6.5	4.5	4.5	4.5	1.0	1.0	1.0
24	14.5	14.5	14.5	7.0	6.5	7.0	4.5	4.5	4.5	1.0	.5	1.0
25	14.5	14.0	14.0	7.0	7.0	7.0	4.5	4.5	4.5	.5	.5	.5
26	14.0	13.5	13.5	7.0	7.0	7.0	4.5	4.5	4.5	.5	.5	.5
27	13.5	13.5	13.5	7.5	7.0	7.0	4.5	4.5	4.5	.5	.5	.5
28	13.5	13.5	13.5	7.5	7.5	7.5	4.5	4.0	4.5	.5	.5	.5
29	13.5	13.0	13.0	7.5	7.0	7.0	4.0	3.5	4.0	.5	.5	.5
30	13.0	13.0	13.0	7.0	7.0	7.0	3.5	3.0	3.5	.5	.5	.5
31	13.0	12.5	12.5	---	---	---	3.0	2.5	2.5	.5	.5	.5
MONTH	10.0	12.5	15.5	12.5	6.5	9.0	7.0	2.5	5.0	1.0	.0	.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	.0	.0	.0	3.0	2.5	2.5	6.5	6.0	6.0	12.0	11.0	11.5
2	.0	.0	.0	2.5	2.5	2.5	6.5	6.0	6.5	12.0	11.5	11.5
3	.0	.0	.0	2.5	2.5	2.5	6.5	6.5	6.5	12.0	11.5	12.0
4	.0	.0	.0	2.5	2.5	2.5	7.0	6.5	7.0	12.0	12.0	12.0
5	.0	.0	.0	2.5	2.5	2.5	7.0	7.0	7.0	12.0	11.5	11.5
6	.0	.0	.0	3.0	2.5	3.0	7.0	7.0	7.0	11.5	11.5	11.5
7	.0	.0	.0	3.5	3.0	3.0	7.0	7.0	7.0	11.5	11.5	11.5
8	.0	.0	.0	4.0	3.5	3.5	7.5	7.0	7.0	12.0	11.5	12.0
9	.5	.0	.5	4.0	4.0	4.0	7.5	7.0	7.0	12.0	12.0	12.0
10	1.0	.5	.5	4.5	4.0	4.0	---	---	---	12.0	11.5	12.0
11	1.0	1.0	1.0	4.5	4.0	4.0	---	---	---	12.0	11.5	11.5
12	1.0	1.0	1.0	4.5	4.0	4.5	7.5	7.5	7.5	11.5	11.5	11.5
13	1.5	1.0	1.5	4.5	4.0	4.5	7.5	7.5	7.5	12.0	11.5	12.0
14	1.5	1.5	1.5	4.5	4.5	4.5	7.5	7.0	7.5	12.0	11.5	12.0
15	2.0	1.5	1.5	5.0	4.5	5.0	7.5	7.5	7.5	12.5	12.0	12.0
16	2.0	2.0	2.0	5.0	5.0	5.0	7.5	7.5	7.5	12.5	12.0	12.5
17	2.0	2.0	2.0	5.0	5.0	5.0	7.5	7.5	7.5	12.5	12.0	12.0
18	2.0	2.0	2.0	5.0	5.0	5.0	8.0	7.5	8.0	12.5	12.0	12.0
19	2.0	2.0	2.0	5.0	5.0	5.0	8.0	7.5	7.5	12.5	12.0	12.0
20	2.0	2.0	2.0	5.5	5.0	5.0	8.0	7.5	7.5	12.5	12.0	12.5
21	2.0	2.0	2.0	5.5	5.5	5.5	8.0	8.0	8.0	12.5	12.5	12.5
22	2.5	2.0	2.0	6.0	5.5	5.5	8.5	8.0	8.0	13.0	12.5	13.0
23	2.0	2.0	2.0	6.0	5.5	6.0	8.5	8.0	8.5	13.5	13.0	13.5
24	2.0	2.0	2.0	6.0	6.0	6.0	8.5	8.5	8.5	14.0	13.5	14.0
25	2.5	2.0	2.0	6.5	6.0	6.0	9.0	8.5	9.0	14.5	14.0	14.0
26	2.5	2.5	2.5	6.5	5.5	6.0	9.0	9.0	9.0	14.0	14.0	14.0
27	2.5	2.5	2.5	6.0	5.5	5.5	9.5	9.0	9.0	14.0	14.0	14.0
28	2.5	2.5	2.5	6.0	5.5	5.5	10.0	9.5	9.5	14.0	13.5	14.0
29	---	---	---	6.0	5.5	6.0	10.5	10.0	10.0	14.0	13.5	13.5
30	---	---	---	6.0	5.5	6.0	11.0	10.5	10.5	13.5	13.0	13.5
31	---	---	---	6.0	6.0	6.0	---	---	---	13.5	13.0	13.5
NORTH	2.5	.0	1.5	6.5	2.5	4.5	11.0	6.0	8.0	14.5	11.0	12.5

COLUMBIA RIVER MAIN STEM

14105700 COLUMBIA RIVER AT THE DALLIES, OR

LOCATION.—Lat 45°36'27", long 121°10'20", in SW¼ sec. 34, T.2 N., R.13 E., Wasco County, Hydrologic Unit 17070105, Corps of Engineers land, on left bank 0.3 mi (0.5 km) downstream from Mill Creek, 2.6 mi (4.2 km) downstream from The Dalles Dam, and at mile 188.9 (303.9 km).

DRAINAGE AREA.—237,000 mi² (614,000 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.—October 1857 to September 1877 (annual maximum only, at Lower Cascades Landing, published in WSP 1318), June 1878 to current year. Published as "Near The Dalles" 1935-56.

REVISED RECORDS.—WSP 534: 1920(m). WSP 1094: 1894. WSP 1248: 1866, 1888, 1899, 1909. WSP 1518: 1876(M).

GAGE.—Acoustic velocity meter (AVM) with water-stage and velocity-index recorder. Datum of gage is National Geodetic Vertical Datum of 1929. See WSP 1738 for history of changes prior to Mar. 16, 1957. Mar. 16, 1957, to Sept 30, 1968, water-stage recorder at site 0.4 mi (0.6 km) upstream at same datum.

REMARKS.—Water-discharge records excellent. Considerable regulation by many large reservoirs. Diurnal fluctuations caused by powerplant and gates at The Dalles Dam. Many diversions for irrigation above station.

AVERAGE DISCHARGE.—101 years, 193,500 ft³/s (5,480 m³/s), 140,200,000 acre-ft/yr (173 km³/yr).

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge (1858-1979), 1,240,000 ft³/s (35,100 m³/s) June 6, 1894, gage height, 106.5 ft (32.46 m); minimum (1878-1979), 12,100 ft³/s (343 m³/s) Apr. 16, 1968 (recorded by AVM due to closure of John Day dam).

EXTREMES FOR CURRENT YEAR.—Maximum daily discharge, 311,000 ft³/s (8,810 m³/s) May 25; maximum gage height, 80.96 ft (24.67 m) May 29; minimum daily discharge, 65,500 ft³/s (1,850 m³/s) Aug. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108000	120000	146000	164000	214000	208000	165000	222000	247000	116000	119000	88000
2	123000	134000	127000	213000	219000	185000	177000	227000	226000	147000	125000	76400
3	153000	129000	115000	230000	171000	133000	197000	174000	177000	154000	118000	74800
4	159000	142000	166000	224000	85700	123000	215000	211000	186000	119000	86200	94200
5	143000	116000	184000	196000	152000	128000	194000	216000	211000	145000	88600	109000
6	138000	138000	178000	134000	151000	118000	181000	230000	229000	142000	132000	117000
7	112000	131000	198000	86000	159000	141000	135000	266000	204000	113000	126000	131000
8	116000	128000	157000	165000	164000	145000	145000	242000	189000	69400	132000	92100
9	144000	133000	90900	174000	151000	200000	209000	235000	165000	137000	132000	80600
10	155000	179000	75500	180000	136000	145000	230000	289000	167000	123000	133000	123000
11	154000	149000	158000	153000	128000	156000	197000	361000	204000	156000	89100	121000
12	166000	95900	163000	162000	194000	124000	199000	258000	191000	139000	42900	115000
13	130000	172000	147000	134000	200000	155000	165000	209000	174000	120000	107000	102000
14	89900	182000	134000	100000	191000	159000	173000	231000	200000	100000	103000	94200
15	69900	181000	162000	156000	185000	172000	168000	222000	154000	74700	117000	84100
16	126000	152000	132000	151000	201000	179000	165000	214000	136000	140000	106000	84000
17	118000	138000	109000	153000	124000	171000	167000	240000	134000	144000	92800	113000
18	126000	115000	159000	164000	91200	153000	179000	257000	165000	146000	86400	102000
19	121000	92000	159000	171000	119000	185000	198000	264000	160000	154000	65500	113000
20	149000	177000	138000	121000	173000	156000	142000	231000	163000	138000	119000	102000
21	153000	193000	114000	123000	169000	164000	156000	255000	183000	83600	92900	95600
22	91500	182000	130000	187000	179000	191000	126000	222000	156000	77100	122000	92900
23	150000	85300	91200	210000	179000	167000	146000	261000	144000	112000	119000	75300
24	128000	139000	88900	202000	137000	133000	175000	283000	133000	126000	126000	114000
25	127000	120000	102000	201000	101000	150000	199000	311000	134000	136000	108000	93200
26	142000	85200	117000	187000	167000	191000	179000	246000	152000	145000	77600	95300
27	131000	197000	177000	89700	178000	218000	178000	256000	182000	132000	129000	95800
28	122000	150000	209000	75700	181000	213000	165000	258000	171000	82800	151000	95400
29	103000	140000	214000	185000	---	220000	198000	271000	157000	80200	120000	74800
30	134000	147000	185000	168000	---	172000	205000	245000	135000	125000	103000	68800
31	127000	---	107000	197000	---	154000	---	248000	---	132000	43700	---
TOTAL	4009300	4242400	4433500	4996400	4499900	5126000	5378000	7595000	5237000	3410800	3408700	2926500
MEAN	129300	141400	143000	161200	160700	165400	179300	245000	174600	122900	109700	97550
MAX	166000	197000	214000	230000	219000	220000	230000	311000	247000	156000	151000	131000
MIN	69900	85200	75500	75700	85700	118000	126000	174000	133000	69400	45500	64400
AC-FT	7952000	8415000	8794000	9910000	8926000	10170000	10670000	15060000	10390000	7559000	4745000	5805000
CAL YR 1978 TOTAL	63631800	MEAN	174300	MAX	313000	MIN	58800	AC-FT	126200000			
WTR YR 1979 TOTAL	55655500	MEAN	152500	MAX	311000	MIN	65500	AC-FT	110400000			

COLUMBIA RIVER MAIN STEM

14105700 COLUMBIA RIVER AT THE DALLES, OR--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected at The Dalles Dam, 3.2 mi (5.1 km) upstream from discharge station.

PERIOD OF RECORD.--Water years 1951 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1950 to current year.

WATER TEMPERATURES: December 1950 to September 1969, October 1973 to September 1976.

REMARKS.--No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 324 micromhos Dec. 7, 1953; minimum daily, 95 micromhos June 8, 1972.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 227 micromhos Feb. 25; minimum daily, 106 micromhos June 16.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C.) WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	150	169	190	189	202	204	191	130	121	137	148	
2	159	173	187	196	---	199	185	---	121	138	148	
3	159	180	187	200	191	192	183	---	121	137	148	
4	160	---	190	196	191	188	180	---	122	139	150	
5	159	---	191	193	191	184	177	---	124	139	150	
6	---	---	189	193	192	183	176	---	124	140	152	
7	163	---	188	---	192	181	178	---	127	140	153	
8	162	195	186	---	190	180	180	115	129	140	154	
9	159	195	186	---	192	180	180	113	127	140	155	
10	157	192	182	---	197	181	177	112	127	140	156	
11	---	157	189	180	---	200	178	111	127	141	157	
12	---	160	193	179	---	205	179	110	128	141	158	
13	---	157	---	180	195	205	180	109	126	141	158	
14	---	---	200	187	193	203	182	109	126	142	159	
15	---	161	203	190	183	200	181	108	127	142	157	
16	---	162	209	193	178	200	181	106	128	141	160	
17	---	163	---	190	179	---	180	107	129	142	159	
18	---	171	206	190	181	203	181	110	128	144	161	
19	---	172	204	192	186	---	185	110	130	144	161	
20	---	---	202	195	190	204	187	113	129	146	158	
21	---	171	---	196	196	208	189	115	130	145	159	
22	---	170	201	198	198	212	---	116	131	144	160	
23	---	167	200	192	207	219	187	117	130	144	---	
24	---	167	199	184	223	219	189	117	132	145	---	
25	---	171	200	182	227	210	187	119	132	147	---	
26	---	172	195	185	226	211	189	118	132	150	---	
27	---	---	187	187	221	213	188	117	132	146	---	
28	---	---	---	185	212	213	188	118	135	146	---	
29	---	169	188	185	---	216	190	118	134	149	---	
30	---	172	192	190	---	220	189	120	137	147	---	
31	---	---	191	186	---	211	---	136	136	148	---	
MEAN	---	164	194	188	196	204	186	160	114	129	143	155
WTR YR 1979	---	MEAN	166	MAX	227	MIN	106	---	---	---	---	---

KLICKITAT RIVER BASIN

14112500 LITTLE KLICKITAT RIVER NEAR WAHKIACUS, WA

LOCATION.--Lat 45°50'34", long 121°03'27", in SW¼SE¼ sec.9, T.4 N., R.14 E., Klickitat County, Hydrologic Unit 17070106, on right bank 450 ft (137 m) upstream from bridge on State Highway 142, 1.1 mi (1.8 km) downstream from Bowman Creek, 2.3 mi (3.7 km) northeast of Wahkiacus and at mile 0.4 (0.6 km).

DRAINAGE AREA.--280 mi² (725 km²).

PERIOD OF RECORD.-- November 1944 to current year. Monthly discharge only for some periods, published in WSP's 1318 and 1935. Water quality records October 1976 to September 1977.

REVISED RECORDS.--WSP 1248: Drainage area. WSP 1348: 1945(M), 1946, 1947(M), 1948.

GAGE.--Water-stage recorder. Datum of gage is 570.34 ft (173.840 m) National Geodetic Vertical Datum of 1929 (river-profile survey). Prior to Dec. 29, 1950, nonrecording gage and crest-stage indicator and Dec. 29, 1950 to Dec. 23, 1964, water-stage recorder at present site at datum 5.86 ft (1.786 m) higher. Dec. 24, 1964 to May 30, 1973, water-stage recorder at site 500 ft (152 m) downstream at present datum.

REMARKS.--Records good except those for period Dec. 26 to Feb. 6 which are poor. Diversions above station for irrigation of 600 acres (2.4 km²). No regulation.

AVERAGE DISCHARGE.--34 years (water years 1946-79), 174 ft³/s (4.928 m³/s), 126,100 acre-ft/yr (155 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft³/s (496 m³/s) Jan. 15, 1974, gage height, 17.58 ft (5.358 m), from rating curve extended above 2,600 ft³/s (73.6 m³/s) on basis of slope-area measurement at gage height 17.51 ft (5.337 m); minimum, 6.4 ft³/s (0.18 m³/s) July 23, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 1,200 ft³/s (34.0 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 7	0430	*4,120 117	*11.94 3.639

Minimum discharge, 6.8 ft³/s (0.19 m³/s) Aug. 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	36	49	23	24	134	96	97	33	17	10	16
2	32	36	45	23	24	118	93	92	32	15	9.8	21
3	32	35	42	23	30	121	88	88	31	14	9.7	30
4	32	36	41	24	35	180	86	89	29	13	9.4	28
5	32	36	42	24	60	369	84	100	30	13	10	25
6	31	36	38	23	650	492	86	105	28	12	9.3	23
7	32	36	34	22	1900	492	91	87	28	12	8.4	22
8	31	36	34	23	308	329	88	76	27	12	8.3	21
9	31	36	41	26	308	257	88	69	26	11	7.9	21
10	31	36	41	33	373	216	86	64	27	12	7.3	22
11	30	35	66	41	338	193	86	59	25	11	7.2	22
12	30	33	50	42	401	189	86	56	23	11	7.6	22
13	30	30	41	40	544	173	93	53	22	10	7.3	22
14	30	32	41	41	234	164	87	53	22	9.4	8.3	21
15	30	40	43	41	152	164	82	50	21	9.7	12	21
16	32	47	40	40	137	161	86	51	21	9.2	11	20
17	33	47	40	41	132	149	94	52	22	8.7	10	19
18	33	41	37	41	140	146	85	50	22	9.6	11	19
19	33	40	35	41	132	140	80	50	21	10	12	20
20	33	38	37	40	115	134	76	49	20	10	15	20
21	34	37	41	40	115	126	74	45	19	11	20	20
22	33	37	41	40	118	121	70	45	18	10	24	20
23	33	37	40	37	113	118	70	48	17	11	18	21
24	34	37	41	34	115	115	82	49	16	11	15	22
25	34	37	41	30	140	118	81	48	18	11	14	20
26	34	37	37	27	177	118	78	45	16	11	14	20
27	34	37	34	29	183	121	85	45	14	11	14	21
28	34	38	32	28	158	126	92	45	14	11	12	22
29	37	46	30	27	---	115	92	46	14	12	12	22
30	37	49	26	26	---	105	97	40	14	13	13	21
31	37	---	24	25	---	100	---	37	---	12	14	---
TOTAL	1011	1134	1224	995	7156	5604	2562	1883	670	353.6	361.5	644
MEAN	32.6	37.8	39.5	32.1	256	181	85.4	60.7	22.3	11.4	11.7	21.5
MAX	37	49	66	42	1900	492	97	105	33	17	24	30
MIN	30	30	24	22	24	100	70	37	14	8.7	7.2	16
AC-FT	2010	2250	2430	1970	14190	11120	5080	3730	1330	701	717	1200

CAL YR 1978 TOTAL 53786.0 MEAN 147 MAX 1300 MIN 13 AC-FT 106700
WTR YR 1979 TOTAL 23598.1 MEAN 64.7 MAX 1900 MIN 7.2 AC-FT 46810

KLICKITAT RIVER BASIN

247

14115000 KLICKITAT RIVER NEAR PITT, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 45°45'34", long 121°12'52", in SW 1/4 sec. 8, T.3 N., R.13 E., Klickitat County, Hydrologic Unit 17070100, on left bank 2.0 mi (4.5 km) south of Pitt, 4.8 mi (7.7 km) southwest of Klickitat, 5.3 mi (8.5 km) upstream from Silvius Creek, and at mile 7.0 (11.3 km).

DRAINAGE AREA.--1,297 mi² (3,359 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1909 to January 1912, October 1928 to current year. Published as "at Klickitat" 1909-12 and as "at Pitt" 1928-35.

REVISED RECORDS.--WSP 1348: 1910(M), 1929-33(M), 1934, 1935-38(M), 1940(M), 1942-43(M), 1946(M), 1948(M). WSP 1955: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 288.9 ft (88.06 m) National Geodetic Vertical Datum of 1929 (river-profile survey). July 3, 1909, to Jan. 31, 1912, nonrecording gage at site 7 mi (11 km) upstream at different datum. Oct. 1, 1928, to Sept. 30, 1935, nonrecording gage at site 3.5 mi (5.6 km) upstream at different datum.

REMARKS.--Water-discharge records excellent. Several small diversions above station for irrigation of about 7,500 acres (30 km²) mostly in vicinity of Glenwood. The largest of these is Hellioreing Irrigation Canal with a maximum flow of 74.5 ft³/s (2.11 m³/s) Aug. 15, 1974, which at times diverts the entire flow of Hellioreing Creek (tributary to Big Muddy Creek). No regulation.

AVERAGE DISCHARGE.--53 years (water years 1910-11, 1929-79), 1,607 ft³/s (45.51 m³/s), 1,164,000 acre-ft/yr (1,435 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,400 ft³/s (1,340 m³/s) Jan. 15, 1974, gage height, 17.12 ft (5.218 m) from high-water mark in well, from rating curve extended above 13,000 ft³/s (368 m³/s) on basis of slope-area measurement at gage height 14.34 ft (4.371 m); minimum, 412 ft³/s (11.7 m³/s) Jan. 16, 1979, gage height, 3.81 ft (1.161 m).

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 4,000 ft³/s (113 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 7	0500	*7,280 206	*8.54 2.603

Minimum discharge, 412 ft³/s (11.7 m³/s) Jan. 16, gage height, 3.81 ft (1.161 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	703	638	776	450	490	983	977	1730	1250	837	605	566
2	609	638	719	460	490	914	944	1820	1300	869	600	627
3	609	645	804	460	505	924	947	1880	1390	866	604	635
4	601	725	753	478	553	1070	931	1950	1430	776	590	688
5	604	721	805	475	781	1490	956	2110	1440	754	564	634
6	673	673	691	440	1300	1070	990	2050	1440	745	547	623
7	673	663	614	430	3260	2150	1040	1820	1270	732	551	610
8	671	649	627	430	2150	1070	1040	1650	1160	710	540	633
9	666	672	717	440	1340	1690	1030	1560	1120	703	555	666
10	665	653	704	470	1400	1490	1020	1400	1120	710	556	580
11	665	604	772	490	1510	1380	990	1420	1150	696	560	582
12	662	569	723	490	1640	1370	990	1440	1150	663	559	578
13	656	599	636	500	2260	1310	1050	1510	1100	645	560	576
14	659	560	647	495	1530	1250	1010	1620	1030	636	552	577
15	656	629	706	494	1140	1290	901	1770	975	636	547	557
16	660	673	651	530	1050	1330	995	1920	933	638	541	562
17	659	693	665	600	943	1250	1050	1920	941	639	539	549
18	656	666	662	605	1010	1200	994	1960	917	640	533	542
19	652	690	610	631	970	1170	961	1990	900	664	545	547
20	652	655	627	636	919	1140	935	1830	892	715	596	569
21	646	650	660	627	996	1110	923	1810	876	720	620	573
22	641	666	652	607	897	1090	923	1880	869	694	646	563
23	640	654	649	587	804	1070	933	2060	853	659	579	557
24	644	656	661	582	805	1040	885	2150	861	659	551	552
25	639	654	669	568	995	1110	1010	2020	853	626	545	549
26	659	650	623	542	1070	1180	1050	1930	876	662	551	546
27	639	618	605	530	1110	1130	1150	1940	845	611	563	543
28	640	642	560	530	1060	1150	1260	1630	837	605	555	537
29	605	724	530	520	---	1090	1400	1450	837	597	554	529
30	652	750	560	510	---	1040	1610	1320	830	587	558	530
31	642	---	470	500	---	1010	---	1200	---	605	558	---
TOTAL	20469	19493	20370	16230	35140	30071	31113	50560	31445	21198	17546	17536
MEAN	660	630	657	524	1135	1260	1037	1761	1046	684	566	565
MAX	703	725	805	600	5260	2150	1010	2150	1440	869	646	635
MIN	639	550	478	430	490	914	923	1200	830	587	533	529
AC-FT	40510	39060	40420	32210	69720	77500	61710	198300	62370	42050	34000	34700
CAL YR 1978 TOTAL	534500			MEAN 1664	MAX 4070	MIN 470	AC-FT 1060000					
WTH TH 1979 TOTAL	324372			MEAN 689	MAX 5200	MIN 430	AC-FT 663400					

KLICKITAT RIVER BASIN

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

WATER-QUALITY RECORDS

LOCATION.--At footbridge 250 ft (76 m) upstream from gaging station.

PERIOD OF RECORD.--Water years 1950-70, 1973, 1975 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1950 to September 1970.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 CM-HF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT * 1978											
02...	1000	609	76	8.0	11.5	.40	11.2	2	3	32	0
NOV											
07...	1450	607	72	7.6	7.1	.60	13.2	20	41	29	0
DEC											
06...	1000	717	74	7.7	1.4	.60	15.0	5	5	30	0
JAN * 1979											
10...	1530	710	75	7.6	1.3	1.1	13.0	8	13	31	0
FEB											
14...	1030	1550	71	--	3.4	21	14.0	800	150	--	--
MAR											
13...	1400	1300	77	7.0	7.2	3.5	12.2	6	3	30	0
APR											
10...	1430	1010	71	--	7.6	1.4	11.0	29	3	29	0
MAY											
08...	1500	1040	52	0.0	10.4	2.0	11.5	2	4	20	0
JUN											
11...	1030	1150	56	7.0	10.4	9.0	9.6	11	0	24	3
JUL											
09...	1010	696	02	--	19.1	1.1	7.0	33	2	24	0
31...	1430	605	71	0.2	19.7	13	10.4	21	21	20	0
SEP											
10...	1415	505	76	0.2	13.7	5.0	12.4	6	410	29	0

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SOMP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT * 1978											
02...	7.0	3.5	4.2	21	.3	1.6	37	4.4	1.0	.1	29
NOV											
07...	5.0	3.5	4.3	23	.3	1.5	36	3.0	1.0	.1	30
DEC											
06...	6.5	3.4	4.2	22	.3	1.5	37	2.4	1.1	.1	29
JAN * 1979											
10...	6.5	3.6	4.0	24	.4	1.4	34	2.7	1.1	.1	31
FEB											
14...	--	--	--	--	--	--	31	4.1	3.2	.1	--
MAR											
13...	7.3	2.9	4.2	22	.3	1.2	35	2.7	1.5	.1	20
APR											
10...	6.2	3.2	3.9	22	.3	1.3	36	2.0	.7	.1	20
MAY											
08...	4.7	2.1	3.1	24	.3	1.2	24	1.7	1.1	.1	24
JUN											
11...	5.6	2.4	3.0	20	.3	1.4	21	12	1.3	.2	22
JUL											
09...	5.2	2.7	3.6	23	.3	1.6	27	3.2	.9	.1	26
31...	6.0	3.2	4.4	25	.4	.9	31	3.0	1.0	.1	31
SEP											
10...	6.3	3.1	4.3	23	.4	1.6	31	4.7	.0	.1	4.3

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WATER QUALITY DATA

DATE	NITROGEN		PHOSPHORUS		CARBON		SEDIMENT		SEDIMENT	
	GEN. TOTAL	AS NO3	PHOSPH. TOTAL	DIS. SOLVED	CARBON. ORGANIC TOTAL	ORGANIC DIS. SOLVED	SEDIMENT. SUSPENDED TOTAL	DISCHARGE. SUSPENDED TOTAL	SIEVE DIAM. 8 FINE THAN	
	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(CM)	
	AS N1	AS N03	AS P1	AS P2	AS C1	AS C2	AS C3	AS C4	AS C5	

[illegible]

Klickitat River Basin
14115000 Klickitat River Near Pitt, WA--Continued
WATER QUALITY DATA

DATE	CHROMIUM- SUS- PENDE RECOV. (UG/L AS CR)	CHROMIUM- DIS- SOLVED (UG/L AS CR)	COBALT- TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT- SUS- PENDE RECOV- ERABLE (UG/L AS CO)	COBALT- DIS- SOLVED (UG/L AS CO)	COPPER- TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER- SUS- PENDE RECOV- ERABLE (UG/L AS CU)	COPPER- DIS- SOLVED (UG/L AS CU)	IRON- TOTAL RECOV- ERABLE (UG/L AS FE)	IRON- SUS- PENDE RECOV- ERABLE (UG/L AS FE)
OCT + 1978										
02...	0	0	0	0	0	7	4	3	190	150
JAN + 1979										
10...	0	0	2	0	<3	15	7	0	220	190
APR										
10...	10	0	3	0	<3	5	4	1	240	100
JUL										
09...	0	0	1	0	<3	6	6	0	190	150

DATE	IRON- DIS- SOLVED (UG/L AS FE)	LEAD- TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD- SUS- PENDE RECOV- ERABLE (UG/L AS PB)	LEAD- DIS- SOLVED (UG/L AS PB)	MANGA- NESE- TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE- SUS- PENDE RECOV- ERABLE (UG/L AS MN)	MANGA- NESE- DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDE RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)
OCT + 1978										
02...	40	--	--	--	10	10	0	.0	.0	.0
JAN + 1979										
10...	30	23	12	11	40	40	3	.1	.1	.0
APR										
10...	80	5	5	0	20	20	2	.1	.0	.1
JUL										
09...	40	15	15	0	10	7	3	.1	.1	.0

DATE	SELENIUM- TOTAL (UG/L AS SE)	SELENIUM- SUS- PENDE TOTAL (UG/L AS SE)	SELENIUM- DIS- SOLVED (UG/L AS SE)	SILVER- TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER- SUS- PENDE RECOV- ERABLE (UG/L AS AG)	SILVER- DIS- SOLVED (UG/L AS AG)	ZINC- TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC- SUS- PENDE RECOV- ERABLE (UG/L AS ZN)	ZINC- DIS- SOLVED (UG/L AS ZN)
OCT + 1978									
02...	0	0	0	0	0	0	10	0	10
JAN + 1979									
10...	0	0	0	1	1	0	10	7	<3
APR									
10...	0	0	0	0	0	0	10	7	<3
JUL									
09...	0	0	0	0	0	0	10	7	<3

DATE	TIME	PERI- PHYTON BIOMASS ASH WEIGHT G/50 M	PERI- PHYTON BIOMASS DRY WEIGHT G/50 M	CHLOROPHYLL- TOTAL CHLOROPHYLL FLUOROM (MG/M2)	CHLOROPHYLL- PERI- PHYTON CHLOROPHYLL FLUOROM (MG/M2)	LENGTH OF EXPO- SURE (DAYS)
OCT + 1978						
02...	1600	3.31	3.70	.020	.000	26
JAN + 1979						
10...	1530	.000	.000	.000	.000	41
APR						
10...	1430	.000	.000	.000	.000	26
JUL						
09...	1410	2.99	3.23	.610	.360	24

KLICKITAT RIVER BASIN

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14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO JULY 1979

DATE TIME	NOV 7-78 1450	MAR 13-79 1400	MAY 8-79 1500	JUN 11-79 1430	JUL 9-79 1010	JUL 31-79 1430
TOTAL CELLS/ML	260	360	620	90	26	86
DIVERSITY: DIVISION	0.3	0.6	0.3	0.0	0.0	0.6
CLASS	0.3	0.6	0.3	0.0	0.0	0.6
ORDER	0.6	1.1	0.4	0.0	0.0	0.6
FAMILY	2.0	2.9	2.9	0.6	0.0	0.9
GENUS	2.0	3.2	3.2	0.6	0.0	0.9
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
CHLOROPHYCEAE						
CHLOROCOCCALES						
ODCISTACEAE						
ANKISTRODESUS	--	--	20	5	--	--
VOLVOCALES						
CHLAMYDOMONADACEAE						
CHLAMYDOMONAS	14	6	--	--	--	--
CHRYSTOPHYTA						
BACILLARIOPHYCEAE						
CENTRALES						
COSCINODISCACEAE						
CYCLOTELLA	14	6	40	11	14	2
PENNALES						
ACHNANTHACEAE						
ACHNANTHES	--	--	84	14	--	--
COCconeis	29	11	25	7	--	--
RHOICOSPHEA	--	--	15	4	--	--
CYRILLACEAE						
ANPHORA	--	--	5	1	--	--
CYRILLA	430	17	35	10	1100	10
DIATOMACEAE						
DIATOMA	500	22	5	1	770	86
FRAGILARIACEAE						
FRAGILARIA	--	--	5	1	42	7
HANNAEA	--	--	--	--	28	5
SYNEURA	--	--	--	--	56	9
GOMPHONEMACEAE						
GOMPHONEMA	630	17	50	14	56	9
MERIDIONACEAE						
MERIDION	--	--	10	3	--	--
FRUSTULACEAE						
FRUSTULA	--	--	5	1	--	--
NAVICULA	14	6	1000	20	84	14
NITZSCHACEAE						
NITZSCHIA	630	17	15	4	84	14
CYANOPHYTA (BLUE-GREEN ALGAE)						
CYANOPHYCEAE						
MOHOGONALES						
NOSTOCACEAE						
ANABAENA	--	--	40	11	--	--
EUGLENOPHYTA (EUGLENOIDS)						
EUGLENOPHYCEAE						
EUGLENALES						
EUGLENAEAE						
TRACHELOMONAS	--	--	5	1	--	--

 NOTE: * = DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
 * = OBSERVED ORGANISM: MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited stream-flow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are useable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. These measurements and others collected for some special reason are called measurements at miscellaneous sites.

Crest-stage partial-record stations

The following table contains annual maximum discharge for crest-stage stations. A crest-stage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained and discharge measurements may have been made for purposes of establishing the stage-discharge relation, but these are not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1979

Station No.	Station name	Location	Drainage area mi ² (km ²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
Pond Oreille River basin							
12396000	Calispell Creek near Bellevue, Wa.	Lat 48°16'40", long 117°20'26", in NW¼SW¼ sec. 26, T.32 N., R.43 E., Pond Oreille County, 2.4 mi (3.9 km) upstream from Calispell Lake, and 4.8 mi (7.7 km) west of Bellevue.	60.1 (157)	1950-71, 1974-	5- 6-79	7.06	442
12396100	Winchester Creek near Conick, Wa.	Lat 48°16'53", long 117°21'44", in NW¼ sec. 15, T.32 N., R.43 E., Pond Oreille County, at county road around Calispell Lake and 4.8 mi (7.7 km) southwest of Conick.	16.0 (41.5)	1956-	5- 6-79	10.24	63
Deep Creek basin							
12399600	Deep Creek near North- port, Wa. (Discontinued)	Lat 48°55'47", long 117°44'59", in SE¼SW¼ sec. 34, T.40 N., R.40 E., Stevens County, on left bank 0.5 mi (0.8 km) upstream from mouth, 2.0 mi (3.2 km) northwest of Northport.	191 (495)	1972-75, 1976-79	5- 6-79	1.69	441
Colville River basin							
12407520	Deer Creek near Valley, Wa. (Discontinued)	Lat 48°07'04", long 117°47'52", in NW¼SW¼ sec. 8, T.30 N., R.40 E., Stevens County, on right bank at downstream side of county road bridge, 2.0 mi (3.2 km) upstream from confluence with Sheep Creek, 5 mi (8.0 km) southwest of Valley, and at river mile 2.0 (3.2 km).	36.0 (93.2)	1958-72, 1973-79	3-25-79	2.21	64
12408300	Little Pond Oreille River near Colville, Wa. (Discontinued)	Lat 48°27'58", long 117°44'53", in NW¼SW¼ sec. 10, T.34 N., R.40 E., Stevens County, on right bank 320 ft (98 m) upstream from abandoned railroad bridge, 0.5 mi (0.8 km) downstream from Deer Creek, 6.2 mi (10.0 km) east of Arden, 9.2 mi (14.8 km) southeast of Colville, and at mile 7.0 (11.3 km).	132 (342)	1957-75, 1976-79	2- 2-79	3.04	256
12408420	Haller Creek near Arden, Wa. (Discontinued)	Lat 48°28'02", long 117°54'26", in SW¼SW¼ sec. 4, T.34 N., R.39 E., Stevens County, 10 ft (3 m) downstream from county road bridge, 1.5 mi (2.4 km) northwest of Arden.	37.0 (95.8)	1958-70, 1971-79	2- 2-79	1.60	22
Spokane River basin							
12427000	Little Spokane River at Elk, Wa. (Discontinued)	Lat 48°01'20", long 117°16'19", in NW¼SW¼ sec. 8, T.29 N., R.44 E., Spokane County, 0.6 mi (1.0 km) upstream from and northeast of Elk.	115 (298)	1948-71, 1972-79	2-26-79	4.494	130
12431100	Chamokane Creek near Springdale, Wa. (Discontinued)	Lat 47°59'41", long 117°43'31", in SE¼SW¼ sec. 23, T.29 N., R.40 E., Stevens County, Spokane Indian Reservation, on right bank downstream wingwall of county road bridge, 4.3 mi (6.9 km) south of Springdale.	99.9 (258.7)	1973-78, 1979	3-25-79	4.94	208
12431200	Chamokane Creek below falls near Long Lake, Wa. (Discontinued)	Lat 47°51'42", long 117°51'28", in SE¼SW¼ sec. 2, T.27 N., R.39 E., Stevens County, Spokane Indian Reservation, on right bank 800 ft (244 m) down- stream from Chamokane Falls, 1.4 mi (2.3 km) upstream from mouth, and 1.8 mi (2.9 km) north of the town of Long Lake.	179 (464)	1971-78, 1979	3-25-79	1.82	192
Sawpoil River basin							
12431890	Sawpoil River above Thirteenmile Creek, near Republic, Wa. (Discontinued)	Lat 48°28'36", long 118°43'41", in SE¼SW¼ sec. 1, T.34 N., R.32 E., Ferry County, Colville Indian Reservation, on right bank downstream wingwall of bridge on State Highway 21, 23 ft (7.6 m) upstream from Thirteenmile Creek, 2.1 mi (3.4 km) upstream from West Fork Sawpoil River, 11.8 mi (19.0 km) south of Republic and at mile 45.5 (73.2 km).	263 (681)	1972-74, 1975-79	5- 6-79	4.114	500

8 Operated on continuous-measuring station.

6 Backwater from ice or beaver dam.

Annual maximum discharge at crest-stage partial-record stations during water year 1979

Annual maximum discharge at cross-gauge partial-record stations during water year 1979							
Station No.	Station name	Location	Drainage area mi ² (km ²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
Sawpall River basin—Continued							
12434110	West Fork Sawpall River near Republic, Wa. (Discontinued)	Lat 48°27'33", long 118°44'57", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 11, T.34 N., R.32 E., Ferry County, Colville Indian Reservation, on upstream left-bank wingwall of bridge on State Highway 21, 13.9 mi (22.6 km) south of Republic, and at mile 0.5 (0.8 km).	308 (798)	1972-744, 1975-79	5- 6-79	3.00	620
12434500	Sawpall River near Keller, Wa. (Discontinued)	Lat 48°06'34", long 118°41'51", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 10, T.30 N., R.33 E., Ferry County, Colville Indian Reservation, on right bank, 0.3 mi (0.5 km) upstream from Brush Creek, 2.2 mi (3.5 km) north of Keller, and at mile 14.1 (22.7 km).	800 (2,279)	1952-554, 1956-59, 1972-744, 1975-79	5- 6-79	5.95	1,160
Nepelem River basin							
12437505	Nepelem River below millpond, at Nepelem, Wa. (Discontinued)	Lat 48°09'55", long 118°58'46", on south line, SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 28, T.31 N., R.30 E., Okanogan County, Colville Indian Reservation, on left bank on upstream wingwall of county bridge, at Nepelem, 0.2 mi (0.3 km) downstream from millpond, and 3.9 mi (6.3 km) upstream from Little Nepelem River.	123 (319)	1972-744, 1975-79	5- 6-79	2.22	166
Okanogan River basin							
12442000	Toots Gonies Creek near Loomis, Wa. (Discontinued)	Lat 48°50'01", long 119°41'33", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 33, T.39 N., R.25 E., Okanogan County, 600 ft (183 m) upstream from Deer Creek, 1,000 ft (305 m) upstream from intake of Whitestone Irrigation Canal and 2.8 mi (4.5 km) northwest of Loomis.	130 (337)	1920-264, 1957-701, 1971-79	5- 5-79	3.02	233
12445900	Onah Creek near Onah, Wa. (Discontinued)	Lat 48°22'02", long 119°26'30", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 16, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, on right bank downstream wingwall of county highway bridge, 1.3 mi (2.1 km) upstream from Mission Creek, and 3.9 mi (6.3 km) southeast of Onah.	119 (308)	1972-744, 1975-76, 1977-79	5- 5-79	2.23	86
Methow River basin							
12447300	Pine Creek near Mazama, Wa. (Discontinued)	Lat 48°34'48", long 120°31'33", in NW $\frac{1}{4}$ sec. 32, T.36 N., R.18 E., Okanogan County, at State Highway 20, 10 mi (16.1 km) west of Mazama.	4.63 (12.0)	1966-	6- 6-79	19.06	74
12449600	Beaver Creek below South Fork near Tule, Wa. (Discontinued)	Lat 48°26'00", long 120°01'28", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 28, T.34 N., R.22 E., Okanogan County, on right bank, 1,000 ft (305 m) downstream from South Fork Beaver Creek, 6.5 mi (10.5 km) northwest of Tule, and at mile 8.9 (14.3 km).	62.0 (160.6)	1960-704, 1979	3-26-79	4.57	32
Wenatchee River basin							
12455000	Wenatchee River below Wenatchee Lake, Wa. (Discontinued)	Lat 47°48'30", long 120°43'20", in sec. 28, T.27 N., R.17 E., Chelan County, on left bank 0.1 mi (0.2 km) downstream from lake outlet, 4.8 mi (7.7 km) northwest of Plain, and 17 mi (27 km) northwest of Leavenworth.	273 (707)	1932-504, 1959-79	6- 6-79	73.78	4,700
12458000	Icicle Creek above Snow Creek near Leavenworth, Wa. (Discontinued)	Lat 47°32'28", long 120°43'08", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 28, T.24 N., R.17 E., Chelan County, 1,000 ft (305 m) upstream from Icicle Canal diversion dam and 4.8 mi (7.7 km) southwest of Leavenworth.	193 (500)	1936-714, 1973-79	5-26-79	8.95	2,630
12461200	East Branch Mission Creek tributary near Cashmere, Wa. (Discontinued)	Lat 47°22'50", long 120°29'20", in NW $\frac{1}{4}$ sec. 20, T.22 N., R.19 E., Chelan County, at U.S. Forest Service road, 9.7 mi (15.6 km) south of Cashmere.	2.49 (6.45)	1955-	3-26-79	11.65	12
12461400	Mission Creek above Sand Creek near Cashmere, Wa. (Discontinued)	Lat 47°25'48", long 120°30'28", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 6, T.22 N., R.19 E., Chelan County, 400 ft (122 m) upstream from Sand Creek, 7.0 mi (11.3 km) south of Cashmere.	39.8 (103)	1959-714, 1972-79	3-11-78 3-26-79	4.35 4.50	6520 630
Crab Creek basin							
12464700	Crab Creek above Sylvan Lake, near Lemona, Wa. (Discontinued)	Lat 47°18'33", long 118°29'55", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 14, T.21 N., R.34 E., Lincoln County, on right bank 2.0 mi (3.2 km) upstream from Sylvan Lake, 25 ft (7.6 m) downstream from concrete dam, and 3.5 mi (5.6 km) south of Lemona.	342 (896)	1972-744, 1975-79	2-27-79	10.02	1,120
12464800	Coal Creek at Mohler, Wa. (Discontinued)	Lat 47°24'23", long 118°19'04", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 7, T.22 N., R.36 E., Lincoln County, on left bank 25 ft (7.6 m) upstream from bridge on county road, 0.3 mi (0.5 km) east of Mohler, and 15 mi (24.1 km) upstream from mouth.	64.7 (167.6)	1963-744, 1975-79	2-27-79	2.72	480

† Operated as continuous-record station.

‡ Corrected.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Annual maximum discharge at crest-stage partial-record stations during water year 1979

Station No.	Station name	Location	Drainage area mi ² (km ²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
Crah Creek basin--Continued							
13463400	Wilson Creek below Corbett Draw near Almira, Wa. (Discontinued)	Lat 47°39'47", long 118°55'46", in S4SW4 sec. 16, T.25 N., R.31 E., Lincoln County, 45 ft (20 m) downstream from Corbett Draw and 3.5 mi (5.6 km) south of Almira.	327 (847)	1969-713, 1972-79	2-27-79	5.29	495
13465500	Wilson Creek at Wilson Creek, Wa. (Discontinued)	Lat 47°23'50", long 119°06'10", in S4SW4 sec. 6, T.22 N., R.30 E., Grant County, 1.0 mi (1.6 km) northeast of town of Wilson Creek and at mile 1.0 (1.6 km).	427 (1,106)	1951-573, 1950-734, 1974-79	2-27-79	7.08	412
12471270	Parrier Coulee near Schrag, Wa. (Discontinued)	Lat 47°07'33", long 118°50'17", in S4SW4 sec. 19, T.19 N., R.32 E., Adams County, on left bank 3.8 mi (6.1 km) upstream from confluence with Beaver Coulee, and 3.7 mi (5.0 km) north of Schrag.	42.0 (109)	1963-744, 1975-79	2-27-79	5.23	333
Yakima River basin							
12491700	Bunse Creek near Rimrock, Wa.	Lat 46°40'33", long 121°04'49", in NW4 sec. 28, T.14 N., R.14 E., Yakima County, at State Highway 14, 0.1 mi (0.2 km) west of Tieton Ranger Station and 2.5 mi (4.0 km) east of Rimrock.	3.91 (10.1)	1955-	3- 8-79	6.20	21
12500500	North Fork Ahtnium Creek near Tappico, Wa. (Discontinued)	Lat 46°33'52", long 120°54'57", in S4SW4 sec. 35, T.13 N., R.15 E., Yakima County, on left bank 150 ft (46 m) downstream from Hasty Creek, 3.2 mi (5.1 km) northwest of Tappico, 20 mi (32.2 km) west of Yakima, and at mile 5.3 (8.5 km).	68.9 (178.5)	1907-764, 1979	5- 5-79	2.32	187
Palouse River basin							
13349300	Palouse River tributary at Colfax, Wa.	Lat 46°53'22", long 117°22'59", in S4SW4 sec. 10, T.16 N., R.43 E., Whitman County, at U.S. Highway 295, about 1 mi (1.6 km) west of Colfax.	2.10 (5.44)	1955-	2-13-79	19.57	78
13349400	Pine Creek at Pine City, Wa. (Discontinued)	Lat 47°12'24", long 117°30'14", on line between NW4 and NE4 sec. 27, T.20 N., R.42 E., Whitman County, on right bank 1.0 mi (1.6 km) east of Pine City and 2.3 mi (3.7 km) west of Malden.	302 (782)	1961-754, 1976-79	2-13-79	15.51	5,600
13350500	Union Flat Creek near Colfax, Wa. (Discontinued)	Lat 46°48'37", long 117°25'52", in NW4 sec. 6, T.15 N., R.43 E., Whitman County, 20 ft (6 m) upstream from county road bridge 6.0 mi (9.7 km) southwest of Colfax.	189 (490)	1953-714, 1976-79	2-13-79	10.22	2,110
13352500	Cow Creek at Hooper, Wa. (Discontinued)	Lat 46°45'46", long 118°08'46", in NW4 sec. 26, T.15 N., R.37 E., Adams County, on county road bridge, 0.5 mi (0.8 km) upstream from mouth and 0.5 mi (0.8 km) north of Hooper.	679 (1,759)	1951-544, 1962-704, 1971-79	2-13-79	6.49	720
Walla Walla River basin							
14013000	Mill Creek near Walla Walla, Wa.	Lat 46°00'29", long 118°07'03", in S4SW4 sec. 7, T.6 N., R.38 E., Walla Walla County, on left bank, 0.1 mi (0.2 km) downstream from Railroad Canyon, 4.0 mi (6.4 km) downstream from city of Walla Walla diversion dam, 4.4 mi (7.1 km) upstream from Blue Creek, 11.5 mi (18.5 km) south-east of Walla Walla, and at mile 21.2 (34.1 km).	59.6 (154.4)	1913-174, 1938-764, 1977-	2-13-79	16.58	932
Klickitat River basin							
14110000	Klickitat River near Glenwood, Wa. (Discontinued)	Lat 46°05'20", long 121°15'30", in SE4 sec. 14, T.7 N., R.12 E., Yakima County, 0.4 mi (0.6 km) downstream from Dairy Creek and 3.2 mi (5.1 km) north of Glenwood.	360 (932)	1909-714, 1972-79	5-24-79	3.60	1,650
14112200	Little Klickitat River tributary near Goldendale, Wa.	Lat 45°50'15", long 120°47'50", in NW4 sec. 15, T.4 N., R.16 E., Klickitat County, at county road 1.5 mi (2.4 km) northeast of Goldendale	.71 (1.84)	1960-	2- 7-79	9.13	39

2 Operated as continuous-record station.

Discharge measurements made at miscellaneous sites during water year 1979

Discharge measurements made at miscellaneous sites during water year 1979						
Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
Pond Oreille River basin						
12394000 Calispell Creek	Pond Oreille River	Lat 48°14'40", long 117°20'26", in NW¼ sec. 26, T.32 N., R.43 E., Pond Oreille County, 2.4 mi (3.9 km) upstream from Calispell Lake, and 4.8 mi (7.7 km) west of Balkema.	68.3	1950-73, 1974a, 1974, 1976-78	4-25-79 7-18-79 9-12-79	110 4.51 21.4
Kettle River basin						
Kettle River	Columbia River	Lat 48°47'03", long 118°07'23", in SW¼ sec. 16, T.38 N., R.37 E., Ferry County, at county road bridge, 0.1 mi (0.2 km) downstream from Youlou Creek, 1.1 mi (1.8 km) east of Barstow and at mi 10.9 (17.5 km).	4,044	1973-76	4-19-79	2,480
Harvey Creek basin						
South Fork Harvey Creek	Harvey Creek	Lat 48°11'02", long 118°03'55", in NW¼ sec. 18, T.31 N., R.38 E., Stevens County, 200 ft (61 m) upstream from county road crossing, 5.2 mi (8.4 km) northeast of Cedonia.	---	---	6-14-78 5-22-79	c3.43 6.23
Do.....	do.....	Lat 48°11'01", long 118°04'00", in NW¼ sec. 18, T.31 N., R.38 E., Stevens County, 150 ft (46 m) downstream from road crossing, 5.1 mi (8.2 km) northeast of Cedonia.	---	---	6-14-78 4- 3-79 5-22-79	c2.74 1.71 6.40
Dry Creek	South Fork Harvey Creek	Lat 48°10'18", long 118°03'23", in NW¼ sec. 20, T.31 N., R.38 E., Stevens County, above Dashiels diversion, 1.0 mi (1.6 km) upstream from confluence with South Fork Harvey Creek, 4.4 mi (7.1 km) northeast of Cedonia.	---	---	5-22-79	.18
Do.....	do.....	Lat 48°10'18", long 118°03'23", in NW¼ sec. 20, T.31 N., R.38 E., Stevens County, below Dashiels diversion, 1.0 mi (1.6 km) upstream from confluence with South Fork Harvey Creek, 4.4 mi (7.1 km) northeast of Cedonia.	---	---	5-22-79	.02
Do.....	do.....	Lat 48°10'43", long 118°04'29", in NW¼ sec. 19, T.31 N., R.38 E., Stevens County, 30 ft (9.1 m) upstream from confluence of South Fork Harvey Creek and 4.7 mi (7.6 km) northeast of Cedonia.	---	---	6- 3-79 5-22-79	.37 .13
South Fork Harvey Creek	Harvey Creek	Lat 48°10'27", long 118°05'28", in SW¼ sec. 24, T.31 N., R.37 E., Stevens County, 800 ft (244 m) south of road crossing, 100 ft (30.5 m) upstream from Dashiels diversion, 3.9 mi (6.3 km) northeast of Cedonia.	---	---	6-14-78	c3.46
South Fork Harvey Creek	do.....	Lat 48°10'27", long 118°05'28", in SW¼ sec. 24, T.31 N., R.37 E., Stevens County, 800 ft (244 m) south of road crossing, 100 ft (30.5 m) downstream from Dashiels diversion, 3.9 mi (6.3 km) northeast of Cedonia.	---	---	6-14-78 5- 3-79 5-22-79	c3.21 3.21 5.94
Do.....	do.....	Lat 48°10'30", long 118°06'44", in SE¼ sec. 23, T.31 N., R.37 E., Stevens County, 300 ft (91.4 m) upstream from confluence of North Fork, 200 ft (61.0 m) downstream from Johnson Road, 3.0 mi (4.8 km) northeast of Cedonia.	---	---	6-14-78 4- 3-79 5-22-79	c3.87 3.01 5.96
Unnamed tributary	North Fork Harvey Creek	Lat 48°13'13", long 118°04'27", in NW¼ sec. 6, T.31 N., R.38 E., Stevens County, 150 ft (45.7 m) upstream from Englehart Diversion, 6.5 mi (10.5 km) northeast of Cedonia.	---	---	6-14-78	c.71
Englehart Diversion	do.....	Lat 48°13'16", long 118°04'27", in NW¼ sec. 6, T.31 N., R.38 E., Stevens County, 150 ft (45.7 m) upstream from Englehart Diversion, 6.5 mi (10.5 km) northeast of Cedonia.	---	---	6-14-78 4- 3-79	c.32 .14
Englehart Pond outlet	do.....	Lat 48°12'59", long 118°04'27", in SE¼ sec. 6, T.31 N., R.38 E., Stevens County, 20 ft (6.1 m) downstream from Englehart Pond, 6.2 mi (10.0 km) northeast of Cedonia.	---	---	4- 3-79	.01
North Fork Harvey Creek	Harvey Creek	Lat 48°12'46", long 118°04'31", in NW¼ sec. 8, T.31 N., R.38 E., Stevens County, 600 ft (183 m) downstream from Englehart Pond, 6.0 mi (9.7 km) northeast of Cedonia.	---	---	6-14-78 4- 3-79	c1.06 1.09
Do.....	do.....	Lat 48°10'32", long 118°06'50", in NW¼ sec. 23, T.31 N., R.37 E., Stevens County, 100 ft (30.5 m) upstream from confluence of South Fork, 3.0 mi (4.8 km) northeast of Cedonia.	---	---	6-14-78 4- 3-79 5-22-79	c1.07 2.02 1.49

t Operated as continuous-gaging station.
c Not previously published.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
Harvey Creek basin--Continued						
Harvey Creek	Franklin D. Roosevelt Lake	Lat 48°10'14", long 118°07'13", in NW¼ sec. 23, T.31 N., R.37 E., Stevens County, 70 ft (21.3 m) upstream from Hergenheimer's ditch #2, 2.6 mi (4.2 km) northeast of Cedonia.	---	---	4- 3-79 5-22-79	5.51 6.69
Ditch No. 2	Harvey Creek	Lat 48°10'18", long 118°07'18", in NW¼ sec. 23, T.31 N., R.37 E., Stevens County, 5 ft (1.5 m) upstream from diversion point, 2.6 mi (4.2 km) northeast of Cedonia.	---	---	5-22-79	.90
Spokane River basin						
12419493 Spokane River	Columbia River	Lat 47°41'55", long 117°02'36", in NW¼ sec. 6, T.25 N., R.46 E., Spokane County, 2.1 mi (3.4 km) southeast of Moab (Newman Lake post office), 0.15 mi (0.24 km) downstream from the Idaho-Washington line at U.S. Highway 10 crossing.	63,870	1906, 1977-78	9-23-76	c1,820
12427000 Little Spokane River	Spokane River	Lat 48°01'20", long 117°16'19", in NW¼ sec. 8, T.29 N., R.44 E., Spokane County, 0.6 mi (1.0 km) upstream from, and northeast of Elk, 3.0 mi (4.8 km) upstream from Dry Creek, and at mile 37.6 (60.5 km).	115	1948-71a, 1972-77a, 1973	10-18-77 7-23-79 8- 3-79 8-10-79 8-24-79 9-14-79 9-28-79	c33.2 30.7 33.0 28.5 30.2 30.5 30.0
12429500 Little Spokane River	do.....	Lat 47°53'22", long 117°21'16", in NW¼ sec. 34, T.28 N., R.43 E., Spokane County, at Chattaroy, 200 ft (61 m) downstream from U.S. Highways 2 and 195, and 200 ft (61 m) upstream from Deer Creek.	301	1948a, 1952, 1955-58, 1960-70, 1973, 1977	7-23-79 8- 3-79 8-10-79 8-24-79 9-14-79 9-28-79	55.2 47.5 40.8 47.1 57.0 60.1
12432000 Little Spokane River	do.....	Lat 47°46'59", long 117°31'43", in SE¼ sec. 5, T.26 N., R.42 E., Spokane County, 50 ft (15 m) downstream from county road bridge, 1.1 mi (1.8 km) upstream from mouth, 5.3 mi (8.5 km) west of Hartford.	700	1903-05, 1912, 1913-14a, 1920-21, 1923-24, 1930-32, 1947-48, 1953, 1955-58, 1960-73, 1977-78	3-14-79 7-27-79 8- 8-79 8-24-79 9-14-79 9-28-79	860 357 339 334 338 382
Okanogan River basin						
12442000 Toots Coulee Creek	Sinilahkin Creek	Lat 48°50'01", long 119°41'32", in NW¼ sec. 33, T.39 N., R.25 E., Okanogan County, 600 ft (183 m) upstream from Deer Creek, 1,800 ft (549 m) upstream from intake of Whitestone Irrigation Canal and 2.8 mi (4.5 km) northwest of Loomis.	130	1920-26a, 1957-70a, 1971-77a, 1975, 1977	8- 7-79	11.4
12442300 Sinilahkin Creek	Palmer Lake	Lat 48°51'06", long 119°38'53", in SE¼ sec. 26, T.39 N., R.25 E., Okanogan County, at road crossing 400 ft (122 m) upstream from Chopaka Creek, 2 mi (3 km) upstream from mouth, and 2.2 mi (3.5 km) north of Loomis.	256	1957-65a, 1977	8- 7-79	3.93
Palmer Creek	Sinilkameen River	Lat 48°55'25", long 119°39'17", in SW¼ sec. 35, T.40 N., R.25 E., Okanogan County, at bridge 0.2 mi (0.3 km) above mouth, and 3.2 mi (5.2 km) southwest of Nighhawk.	296	1929-44, 1961-62, 1967, 1970, 1973, 1977	8- 7-79	11.7
Okanogan- Tonasket Canal		Lat 48°56'04", long 119°26'56", in NW¼ sec. 28, T.40 N., R.27 E., Okanogan County, 0.4 mi (0.6 km) west of 12th Street bridge, at Oroville, and 250 ft (76 m) below siphon.	---	---	5-17-79	67.7
12443600 Sinilkameen River	Okanogan River	Lat 48°56'05", long 119°26'27", in NE¼ sec. 28, T.40 N., R.27 E., Okanogan County, at Twelfth Avenue bridge in Oroville.	3,590	1929-30, 1935, 1937, 1939-40, 1943-44, 1975-78	4-25-79 6-21-79 8-15-79	795 3,420 215
Antoine Creek	do.....	Lat 48°45'34", long 119°24'29", in SE¼ sec. 27, T.38 N., R.27 E., Okanogan County, at U.S. Highway 97, 0.2 mi (0.3 km) above mouth, and 2.1 mi (3.4 km) south of Ellisford.	---	1977	8- 6-79	0

† Operated as continuous-gaging station.

a Operated as crest-stage station.

b Approximately

c Not previously published.

Discharge measurements made at miscellaneous sites during water year 1979

Discharge measurements made at miscellaneous sites during water year 1979						
Stream	Tributary to	Location	Drainage area (mi. ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft. ³ /s)
Okanogan River basin--Continued						
Riwanah Creek	Okanogan River	Lat 48°42'41", long 119°26'04", in NW¼ sec.16, T.37 N., R.27 E., Okanogan County, at U.S. Highway 97 crossing, 500 ft (150 m) upstream from mouth at Tonasket.	48.1	1912, 1970, 1973	8- 6-79	0
12444490 Bonaparte Creek	do.....	Lat 48°39'26", long 119°12'02", in SE¼ sec.32, T.37 N., R.29 E., Okanogan County, on right bank 1,200 ft (366 m) downstream from Peony Creek, 10 mi (16.1 km) southwest of Wauconda and at mile 13.8 (22.2 km).	96.6	1968-73†	8- 8-79	.30
Bonaparte Creek	do.....	Lat 48°42'05", long 119°26'29", in NW¼ sec.16, T.37 N., R.27 E., Okanogan County, at U.S. Highway 97 crossing at Tonasket, 0.3 mi (0.5 km) upstream from the mouth.	148	1912, 1977	8- 6-79	a.01
Kamas Creek	do.....	Lat 48°39'34", long 119°28'41", in NW¼ sec.31, T.37 N., R.27 E., Okanogan County, at county road (old U.S. Highway 97) crossing 3.5 mi (5.6 km) southwest of Tonasket.	---	1977	8- 7-79	1.82
Johnson Creek	do.....	Lat 48°29'33", long 119°32'05", in SW¼ sec.35, T.35 N., R.26 E., Okanogan County, 1.4 mi (2.2 km) southwest of Riverside, and 1.5 mi (2.4 km) upstream from the mouth.	---	1977	8- 6-79	0
12445900 Omak Creek	do.....	Lat 48°22'02", long 119°26'38", in NE¼ sec.16, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, on right bank downstream wingwall of county highway bridge, 1.3 mi (2.1 km) upstream from Mission Creek, and 3.9 mi (6.3 km) southeast of Omak.	119	1972-74‡, 1975-76a, 1977‡, 1978a	8- 6-79	.14
Okanogan River	Columbia River	Lat 48°21'48", long 119°34'36", in SW¼ sec.16, T.33 N., R.26 E., Okanogan County, on downstream side of Oak Street (formerly U.S. Highway 97) bridge in Okanogan, 150 ft (46 m) northwest of Great Northern Railway depot, and 0.3 mi (0.5 km) upstream from Salmon Creek.	67,900	1911-25‡, 1976	4-27-79	1,290
Salmon Creek	Okanogan River	Lat 48°21'48", long 119°35'17", in NW¼ sec.17, T.33 N., R.26 E., Okanogan County, at county road crossing, and 0.5 mi (0.8 km) upstream from mouth.	153	1948, 1977	8- 6-79	0
Loup Loup Creek	do.....	Lat 48°16'58", long 119°42'27", in SW¼ sec.9, T.32 N., R.25 E., Okanogan County, at county road crossing at Malott, and 0.2 mi (0.3 km) upstream from mouth.	64.2	1974, 1977	8- 6-79	0
Methow River basin						
Early Winters Creek	Methow River	Lat 48°35'55", long 120°26'31", in NE¼ sec.26, T.10 N., R.19 E., Okanogan National Forest, Okanogan County, at bridge at Early Winters Ranger Station, 0.3 mi (0.5 km) from the mouth and 1.7 mi (2.7 km) northwest of Mazama on the North Cascade Highway (State Highway 20). Note.--New bridge is at slightly different location than Mazama quad sheet indicates.	---	1975-78	10- 3-78 4-30-79 7-12-79	74.6 339 83.5
12447374 Methow River	Columbia River	Lat 48°35'23", long 120°24'20", in NE¼ sec.25, T.36 N., R.19 E., Okanogan County, Okanogan National Forest, at State Highway 20 bridge, 0.2 mi (0.3 km) southwest of Mazama and at mile 65.3 (105.1 km).	363	1942, 1967, 1970-72, 1975-78	6- 7-79 9- 5-79	1,130 178
12447500 Chewack River	Methow River	Lat 48°33'53", long 120°10'35", in SE¼ sec.2, T.35 N., R.21 E., Okanogan County, at road crossing, 0.9 mi (1.4 km) downstream from Boulder Creek and 5.4 mi (8.7 km) north of Winthrop.	466	1942, 1978	10- 3-78 6- 7-79 7-13-79	263 503 237
Methow River	Columbia River	Lat 48°28'26", long 120°10'35", in NE¼ sec.2, T.34 N., R.21 E., Okanogan County, at State Highway road crossing, 0.5 mi (0.8 km) downstream from Chewack River, at southend of Winthrop.	1,007	1978	6- 7-79 9- 6-79	3,120 459
Do.....	do.....	Lat 48°20'47", long 120°04'54", in SE¼ sec.21, T.33 N., R.22 E., Okanogan County, on left bank 1.3 mi (2.1 km) southeast of Twisp city limits, 2.2 mi (3.5 km) upstream from Beaver Creek and 3.0 mi (4.8 km) downstream from Twisp River.	---	1976, 1978	6- 7-79 9- 6-79	2,380 533

† Operated as continuous gaging station.

a Operated as crest-stage station.

b Approximately.

c Estimated.

Discharge measurements made at miscellaneous sites during water year 1979

Measurements made at miscellaneous sites during water year 1979						
Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
Entiat River basin						
12452990 Entiat River	Columbia River	Lat 47°39'48", long 120°14'58", in NW¼ sec. 18, T.25 N., R.21 E., Chelan County, at bridge 1.2 mi (1.9 km) west of Entiat High School and at mile 1.5 (2.4 km).	419	1971-72, 1975-78	3-30-79	188
Wenatchee River basin						
Wenatchee River	Columbia River	Lat 47°40'34", long 120°43'58", in NW¼ sec. 9, T.25 N., R.17 E., Chelan County, Wenatchee National Forest, at U.S. Highway 2 crossing and Tumwater campground, 0.4 mi (0.6 km) downstream from mouth of Chiwaukum Creek 4.1 mi (6.6 km) south of Winton, and at mile 35.5 (57.1 km).	---	1978	10-13-78 3-28-79	684 2,000
Douglas Creek basin						
Rattlesnake Springs	Rattlesnake Creek	Lat 47°27'03", long 119°45'29", in NW¼ sec. 36, T.23 N., R.24 E., Douglas County, at spring, 7.8 mi (12.6 km) northeast of Palisades.	---	1978	10-17-78 11- 8-78 11-30-78 12-14-78 1-24-79 2-26-79 4- 5-79 5- 1-79 5-10-79 5-30-79 6-14-79 6-26-79 7-25-79 8-27-79 9-25-79	0.15 .23 .18 .18 .25 .30 .31 .37 .38 .21 .08 .06 .03 .03 .02
Unnamed tributary	Douglas Draw	Lat 47°42'00", long 119°54'25", in SW¼ sec. 35, T.26 N., R.23 E., Douglas County, at county road crossing, and 4.5 mi (7.2 km) west of Withrow.	13.8	---	8-30-79	† 494
Do.....	do.....	Lat 47°42'08", long 119°57'25", in SE¼ sec. 33, T.26 N., R.23 E., Douglas County, and 6.7 mi (10.8 km) west of Withrow.	10.7	---	8-30-79	† 548
Do.....	do.....	Lat 47°42'08", long 119°57'35", in SW¼ sec. 33, T.26 N., R.23 E., Douglas County, and 6.8 mi (10.9 km) west of Withrow.	9.34	---	8-30-79	† 962
Yakima River basin						
12476000 Kachess River	Yakima River	Lat 47°15'41", long 121°12'08", on north line sec. 3, T.20 N., R.13 E., Kittitas County, 0.3 (0.5 km) downstream from Kachess Lake, 2.0 mi (3.2 km) northwest of Easton, and at mile 0.6 (1.0 km).	63.6	1903-78†	6- 4-79 8- 6-79	1,010 1,470
12479000 Cle Elum River	Do.....	Lat 47°14'41", long 121°04'00", in NW¼ sec. 11, T.20 N., R.14 E., Kittitas County, 0.3 mi (0.5 km) downstream from dam at Cle Elum Lake, 3.4 mi (5.5 km) northwest of Roslyn, and at mile 7.9 (12.7 km).	203	1903-78†	6- 4-79 8- 6-79	e.1 265
12479500 Yakima River	Columbia River	Lat 47°11'33", long 120°56'48", in SW¼ sec. 27, T.20 N., R.15 E., Kittitas County, 300 ft (91 m) downstream from highway bridge at Cle Elum, 0.1 mi (0.2 km) downstream from Crystal Creek, 1.3 mi (2.1 km) downstream from Tillman Creek, 7.0 mi (11.3 km) upstream from Teanaway River, and at mile 183.1 (294.6 km).	495	1906-78†	3- 6-79 6- 5-79	582 1,600
12488000 Bumping River	American River	Lat 46°52'48", long 121°16'52", in NE¼ sec. 13, T.16 N., R.12 E. (unsurveyed), Yakima County, Snoqualmie National Forest, 1.2 mi (1.9 km) downstream from spillway of Bumping Lake Dam, 1.3 mi (2.1 km) southeast of Gooseprairie post office, 8.6 mi (13.8 km) southwest of American River, 15.8 mi (25.4 km) west of Nile, and at mile 15.8 (25.4 km).	70.7	1906†, 1909-78†	8- 7-79	420
12491500 Tieton River	Naches River	Lat 46°39'46", long 121°07'25", in NW¼ sec. 31, T.14 N., R.14 E., Yakima County, Snoqualmie National Forest, 900 ft (270 m) upstream from Wildcat Creek, 1,200 ft (370 m) downstream from Tieton Dam, 19.0 mi (30.6 km) upstream from Oak Creek, 22 mi (35 km) southwest of Naches, and at mile 20.9 (33.6 km).	187	1908-12†, 1914†, 1918-21†, 1925-78†	6- 6-79 8- 7-79	919 1,460

† Operated as continuous gaging station.

† Peak flow.

Discharge measurements made at miscellaneous sites during water year 1979

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
Yakima River basin--Continued						
12491700 Hause Creek	Tieton River	Lat 46°40'33", long 121°04'49", in NE¼ sec.28, T.14 N., R.1 E., Yakima County, at State Highway 14, 0.1 mi (0.2 km) west of Tieton Ranger Station and 2.5 mi (4.0 km) east of Rimrock.	3.91	1955-76a, 1967, 1969, 1971, 1976-78	8- 7-79	e0.2
12492500 Tieton River	Naches River	Lat 46°40'16", long 121°00'00", in NE¼ sec.30, T.14 N., R.15 E., Yakima County, Snoqualmie National Forest, 1,000 ft (300 m) downstream from headworks of Tieton Canal, 7.1 mi (11.4 km) downstream from Tieton Dam, 12.4 mi (20.0 km) upstream from Oak Creek, 16 mi (26 km) southwest of Naches, and at mile 14.2 (22.8 km).	239	1906-78†	6- 7-79 8- 7-79	665 1,100
12505000 Yakima River	Columbia River	Lat 46°29'50", long 120°26'30", in NE¼ sec.28, T.12 N., R.19 E., Yakima County, 500 ft (152 m) downstream from Sunnyside diversion dam, 1.3 mi (2.1 km) east of Parker, 3.1 mi (5.0 km) downstream from Ahtanum Creek, and at mile 103.8 (167.0 km).	3,660	1908-78‡	6- 7-79 8- 9-79	131 223
12511520 Yakima River	Do.....	Lat 46°21'32", long 119°23'42", in NW¼ sec.14, T.10 N., R.27 E., Benton County, 2.4 mi (3.9 km) downstream from Horn Rapids Dam, 4.0 mi (6.4 km) northwest of Richland and at mile 16.15 (26.0 km).	---	1978	4- 9-79 5-25-79 6-18-79 7-26-79	2,190 1,760 933 514
Palouse River basin						
Spring Creek	Union Flat Creek	Lat 46°31'41", long 117°05'01", in NE¼ sec.18, T.12 N., R.46 E., Whitman County, 0.3 mi (0.5 km) south of Uniontown, 1.1 mi (1.8 km) upstream from mouth.	10.1	---	2-12-79	†1,080
Walla Walla River basin						
14017600 Touchet River	Walla Walla River	Lat 46°02'29", long 118°40'59", in NE¼ sec.33, T.7 N., R.33 E., Walla Walla County, at U.S. Highway 410 crossing, 0.5 mi (0.8 km) west of Touchet, 0.6 mi (1.0 km) above mouth.	747	1962-65, 1972-75, 1977-78	10-25-78 12-21-78 3- 1-79 4-24-79 6-21-79 8-28-79	14.9 122 542 366 34.5 5.6
Walla Walla River	Columbia River	Lat 46°02'15", long 118°45'55", in SE¼ sec.35, T.7 N., R.32 E., Walla Walla County, at bridge 0.9 mi (1.4 km) downstream from Warm Springs Canyon, 2.5 mi (4.0 km) downstream from station 14018500, 3.7 mi (6.0 km) southwest of Touchet, and at mile 15.7 (25.3 km).	b1,690	---	6- 7-79 8- 23-79	103 9.3

† PERK FLOW.

‡ Operated as continuous gaging station.

b Approximately

e Estimated.

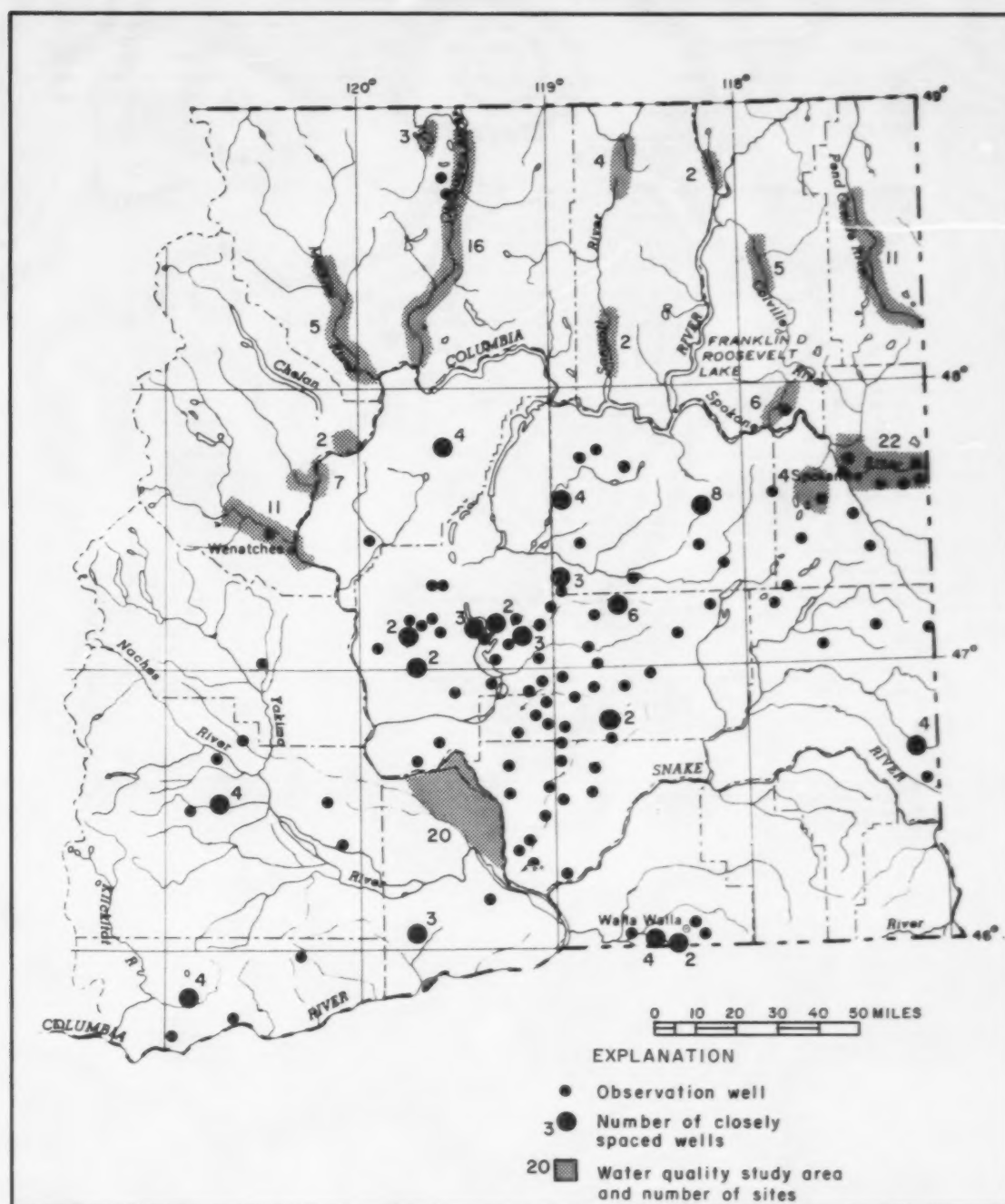


Figure 19. Map of Eastern Washington showing locations of ground-water level observations.

GROUND-WATER LEVELS

261

ADAMS COUNTY

46460119085101 Local number, 15/29-26C1.

LOCATION.--Lat 46°46'03", long 119°06'52". Hydrologic Unit 17020016, at Othello.

Owner: Brick Patterson.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 257 ft (78.3 m), cased to 150 ft (45.7 m).

DATUM.--Altitude of land-surface datum is 1,030 ft (314 m).

PERIOD OF RECORD.--September 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 96.71 ft (29.477 m) below land-surface datum, Dec. 16, 1975; lowest measured, 197.91 ft (60.323 m) below land-surface datum, Apr. 2, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1978	115.8	Jan. 25, 1979	107.3	May 2, 1979	106.0	Aug. 29, 1979	130.3
Dec. 19	162.4	Mar. 8	171.8	June 27	122.3		

464415118585001. Local number, 15/31-31N1.

LOCATION.--Lat 46°44'13", long 118°55'56". Hydrologic Unit 17020016.

Owner: Burl Egbert.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 260 ft (85.3 m), cased to 50 ft (24.4 m).

DATUM.--Altitude of land-surface datum is 1,154 ft (351.7 m).

PERIOD OF RECORD.--October 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 160.0 ft (48.77 m) below land-surface datum, Sept. 29, 1976; lowest measured, 176.3 ft (54.35 m) below land-surface datum, May 29, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 30, 1978	173.8	Mar. 28, 1979	177.1	July 24, 1979	177.6	Sept. 25, 1979	175.9
Jan. 24, 1979	175.5	May 29	176.3				

464740118444001. Local Number 15/32-13D1.

LOCATION.--Lat 46°47'40", long 118°44'40". Hydrologic Unit 17020016.

Owner: State of Washington, Department of Highways.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 12 in (300 mm), depth 602 ft (183.5 m), cased to 65 ft (19.2 m).

DATUM.--Altitude of land-surface datum is 1,216 ft (370.6 m).

PERIOD OF RECORD.--June 1962 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 170.12 ft (51.853 m) below land-surface datum, Nov. 29, 1962; lowest measured, 203.3 ft (61.97 m) below land-surface datum, Mar. 9, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1978	200.8A	Jan. 25, 1979	202.6	May 2, 1979	203.8B	Aug. 29, 1979	206.3A
Dec. 19	202.0A	Mar. 9	203.3	June 27	205.2A		

465149119062801 Local number, 16/30-19E1.

LOCATION.--Lat 46°51'49", long 119°06'16". Hydrologic Unit 17020016.

Owner: K. Summerville.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 467 ft (146.4 m).

DATUM.--Altitude of land-surface datum is 1,160 ft (354 m).

PERIOD OF RECORD.--May 1958, March 1963, March 1968, April 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 46.84 ft (14.277 m) below land-surface datum, Dec. 20, 1975; lowest measured, 189.90 ft (57.882 m) below land-surface datum, May 12, 1958.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1978	47.6	Jan. 25, 1979	47.49B	May 3, 1979	49.91	Aug. 29, 1979	47.07
Dec. 20	46.84	Mar. 9	48.76	June 28	49.83		

465100119001502 Local number, 16/30-28A2.

LOCATION.--Lat 46°51'00", long 119°06'13". Hydrologic Unit 17020016.

Owner: G.W. Klipshardt.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 600 ft (183 m).

DATUM.--Altitude of land-surface datum is 1,359 ft (414.2 m).

PERIOD OF RECORD.--April 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 266.71 ft (81.303 m) below land-surface datum, Apr. 22, 1975; lowest measured, 466 ft (142.0 m) below land-surface datum, July 24, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1978	418.	Jan. 25, 1979	339.	May 3, 1979	387.	Aug. 29, 1979	465.A
Dec. 20,	357	Mar. 9	329.	June 28	438.A		

A Well being pumped.

B Well recently pumped.

GROUND-WATER LEVELS

ADAMS COUNTY--Continued

465250116450001 Local number, 16/32-14A1.
 LOCATION.--Lat 46°32'48", long 116°45'01", Hydrologic Unit 17020016.
 Owner: D. E. Phillips.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 16 in (400 mm), depth 765 ft (233.2 m), cased to 67 ft (20.4 m).
 DATUM.--Altitude of land-surface datum is 1,465 ft (445.9 m).
 PERIOD OF RECORD.--October 1966 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 275.4 ft (83.94 m) below land-surface datum, Feb. 7, 1978; lowest measured, 424.6 ft (129.42 m) below land-surface datum, Oct. 18, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1978	474.A	Jan. 25, 1979	419.	May 2, 1979	417	Aug. 29, 1979	475.A
Dec. 19	415	Mar. 9	406	June 27	479A		

465100116455501 Local number, 16/32-25A1.
 LOCATION.--Lat 46°51'00", long 116°43'53", Hydrologic Unit 17020016.
 Owner: D. E. Phillips.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 16 in (400 mm), depth 812 ft (247.5 m), cased to 82 ft (25.0 m).
 DATUM.--Altitude of land-surface datum is 1,457 ft (444.1 m).
 PERIOD OF RECORD.--April 1966 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 312.16 ft (95.146 m) below land-surface datum, Sept. 3, 1974; lowest measured, 479 ft (146.0 m) below land-surface datum, June 25, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1978	482.A	Jan. 25, 1979	415.	May 2, 1979	449.A	Aug. 29, 1979	472.
Dec. 19	422	Mar. 9	412.	June 27	495.A		

465010118561001. Local number, 17/31-6P1.
 LOCATION.--Lat 46°59'10", long 116°56'10", Hydrologic Unit 17020015, at Lind.
 Owner: D. E. Phillips.

AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 129 ft (39.3 m).
 DATUM.--Altitude of land-surface datum is 1,217 ft (370.9 m).
 PERIOD OF RECORD.--May 1954 to current year (discontinued).
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.11 ft (8.568 m) below land-surface datum, Dec. 3, 1974; lowest measured, 72.87 ft (22.211 m) below land-surface datum, May 25, 1954.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1978	50.77	Mar. 9, 1979	53.40				

46526118543401 Local number, 17/31-34C1.
 LOCATION.--Lat 46°55'26", long 116°54'34", Hydrologic Unit 17020015.
 Owner: Erna Wells.

AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled stock water-table well, diameter 6 in (150 mm), depth 315 ft (96.0 m).
 DATUM.--Altitude of land-surface datum is 1,413 ft (430.7 m).
 PERIOD OF RECORD.--January 1974 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 153.91 ft (46.912 m) below land-surface datum, Feb. 18, 1975; lowest measured, 310.40 ft (94.610 m) below land-surface datum, Jan. 21, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1978	239.2	Jan. 25, 1979	236.1	Mar. 9, 1979	250.3		

465700118510001. Local number, 17/32-19E1.
 LOCATION.--Lat 46°57'00", long 116°51'00", Hydrologic Unit 17020015, at Roxboro.

Owner: The Milwaukee Road.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 258 ft (78.6 m).
 DATUM.--Altitude of land-surface datum is 1,260 ft (384 m).
 PERIOD OF RECORD.--June 1962 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 104.96 ft (31.992 m) below land-surface datum, Jan. 29, 1963; lowest measured, 219.9 ft (67.03 m) below land-surface datum, Aug. 29, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1978	207.3	Jan. 25, 1979	194.4	May 3, 1979	200.6	Aug. 29, 1979	219.9
Dec. 19	196.0	Mar. 9	194.5	June 28	219.2		

A Well being pumped.

GROUND-WATER LEVELS

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ADAMS COUNTY--Continued

465730118410001. Local number, 17/33-1781.

LOCATION.--46°57'30", 118°41'00", Hydrologic unit, 17020015.

Owner: D. E. Phillips.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 10 in (250 mm), depth 164 ft (50.1 m).

Cased to 80 ft (24.4 m).

DATUM.--Altitude of land-surface datum is 1,310 ft (399 m).

REMARKS.--Pump installed December 1974.

PERIOD OF RECORD.--April 1963 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 30.60 ft (9.327 m) below land-surface datum, Dec. 5, 1976; lowest measured, 47.32 ft (14.423 m) below land-surface datum, Jan. 29, 1963.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1978	72.9A	Jan. 25, 1979	36.7	May 2, 1979	62.52B	Aug. 29, 1979	39.04A
Dec. 19	35.7	Mar. 9	35.97A	June 27	36.69		

465824118514903. Local number, 17/34-7N1.

LOCATION.--Lat 46°58'24", long 118°35'49", Hydrologic Unit 17020015.

Owner: City of Lind.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled public-supply water-table well, diameter 16 to 22 in (400 to 300 mm), depth 666 ft

(209.1 m), cased to 75 ft (22.9 m).

DATUM.--Altitude of land-surface datum is 1,404 ft (427.9 m).

PERIOD OF RECORD.--June 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 105.60 ft (32.167 m) below land-surface datum,

Apr. 7, 1969; lowest measured, 140.62 ft (42.88 m) below land-surface datum, Oct. 17, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1978	140.0	Jan. 25, 1979	158.1	May 2, 1979	137.1	Aug. 29, 1979	140.6
Dec. 19	137.84	Mar. 9	155.0	June 27	139.7		

470451118582001 Local number, 18/31-6P1.

LOCATION.--Lat 47°04'51", long 118°38'20", Hydrologic Unit 17020015.

Owner: Chas. Furber.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 15 in (375 mm), depth 254 ft (77.4 m), cased to

47 ft (14.3 m).

DATUM.--Altitude of land-surface datum is 1,166 ft (355.4 m).

PERIOD OF RECORD.--April 1951, December 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.0 ft (8.230 m) below land-surface datum, Apr. 30, 1951; lowest measured, 142.4 ft (43.40 m) below land-surface datum, Oct. 14, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 7, 1979	119.9						

470232118572901 Local number, 18/31-2001.

LOCATION.--Lat 47°02'52", long 116°57'29", Hydrologic Unit 17020015.

Owner: J. Fox Estate.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 150 ft (45.7 m).

DATUM.--Altitude of land-surface datum is 1,235 ft (382.5 m).

PERIOD OF RECORD.--October 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.32 ft (16.557 m) below land-surface datum, Oct. 4, 1973; lowest measured, 84.27 ft (25.886 m) below land-surface datum, Aug. 2, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1978	61.5						

470815118222202 Local number, 19/35-1402.

LOCATION.--Lat 47°08'13", long 118°22'22", Hydrologic Unit 17020015, at Riverville.

Owner: Riverville No. 2.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm), depth 108 ft (32.9 m), cased to 140

ft (42.7 m).

DATUM.--Altitude of land-surface datum is 1,405 ft (428.2 m).

PERIOD OF RECORD.--October 1962 to October 1973, March 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 119.9 ft (36.55 m) below land-surface datum, June 25, 1967; lowest measured, 190.8 ft (58.09 m) below land-surface datum, Sept. 8, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 10, 1978	167.0	Mar. 7, 1979	141.8				

A Well being pumped.

B Well recently pumped.

GROUND-WATER LEVELS
ADAMS COUNTY--Continued

471217118441802. Local number, 20/32-25C2.
LOCATION.--Lat 47°12'17", long 118°44'18", Hydrologic Unit 17020015.
Owner: Weldon Walter.

AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 706 ft (215.2 m).
DATUM.--Altitude of land-surface datum is 1,791 ft (545.9 m).
PERIOD OF RECORD.--October 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 251.55 ft (76.672 m) below land-surface datum, Feb. 27, 1965; lowest measured, 338.5 ft (103.17 m) below land-surface datum, Oct. 10, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 10, 1978	338.5	Mar. 7, 1979	310.6				

471347118410101. Local number, 20/33-16E1.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test water-table well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 70 to 94 ft (21.3 to 28.7 m).
DATUM.--Altitude of land-surface datum is 1,670 ft (509 m).
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 80.34 ft (24.488 m) below land surface datum, June 20, 1975; lowest measured, 93.38 ft (28.46 m) below land-surface datum, Apr. 23, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 10, 1978	83.3	Jan. 22, 1979	84.1	Apr. 30, 1979	84.5	Aug. 27, 1979	85.0
Dec. 12	83.2	Mar. 7	84.4	June 25	84.9		

471347118410102. Local number, 20/33-16E2.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 158 to 183 ft (48.2 to 55.8 m).
DATUM.--Altitude of land-surface datum is 1,670 ft (509 m).
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 107.35 ft (32.720 m) below land-surface datum, Mar. 23, 1972; lowest measured, 141.0 ft (42.96 m) below land-surface datum, Dec. 12, 1978, Aug. 27, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 10, 1978	139.7	Jan. 22, 1979	140.8	Apr. 30, 1979	138.9	Aug. 27, 1979	141.0
Dec. 12	141.0	Mar. 7	140.2	June 25	140.1		

471347118410103. Local number, 20/33-16E3.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 282 to 299 ft (86.0 to 91.1 m).
DATUM.--Altitude of land-surface datum is 1,670 ft (509 m).
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 109.89 ft (33.494 m) below land-surface datum, Feb. 23, 1972; lowest measured, 152.75 ft (46.558 m) below land-surface datum, Oct. 10, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 10, 1978	152.75	Jan. 22, 1979	151.8	Apr. 30, 1979	149.9	Aug. 27, 1979	152.1
Dec. 12	152.7	Mar. 7	150.7	June 25	152.3		

471347118410104. Local number, 20/33-16E4.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 352 to 401 ft (107.3 to 122.2 m).
DATUM.--Altitude of land-surface datum is 1,670 ft (509 m).
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 106.46 ft (32.449 m) below land-surface datum, Mar. 23, 1972; lowest measured, 137.7 ft (41.97 m) below land-surface datum, Dec. 12, 1978, Aug. 27, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 10, 1978	136.80	Jan. 22, 1979	137.3	Apr. 30, 1979	135.4	Aug. 27, 1979	137.7
Dec. 12	137.7	Mar. 7	136.6	June 25	137.0		

GROUND-WATER LEVELS

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ADAMS COUNTY--Continued

471347118410105. Local number, 20/55-1085.
 LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
 Owner: State of Washington, Department of Ecology.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m).
 uncased depth interval from 506 to 616 ft (178.6 to 187.8 m).
 DATUM.--Altitude of land-surface datum is 1,670 ft (509 m).
 REMARKS.--Water measured in piezometer.
 PERIOD OF RECORD.--April 1971 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 112.55 ft (34.264 m) below land-surface datum, Feb. 23, 1972; lowest measured, 299.9 ft (91.41 m) below land-surface datum, June 25, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 10, 1978	298.40	Jan. 22, 1979	245.8	Apr. 30, 1979	242.2	Aug. 27, 1979	276.4
Dec. 12	254.3	Mar. 7	239.2	June 25	299.9		

471347118410106. Local number, 20/55-1086.
 LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
 Owner: State of Washington, Department of Ecology.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m).
 uncased depth interval from 676 to 701 ft (206.0 to 213.7 m).
 DATUM.--Altitude of land-surface datum is 1,670 ft (509 m).
 REMARKS.--Water level measured in piezometer.
 PERIOD OF RECORD.--April 1971 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 279.19 ft (85.097 m) below land-surface datum, Apr. 21, 1971; lowest measured, 396.6 ft (120.85 m) below land-surface datum, Oct. 10, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 10, 1978	396.6	Jan. 22, 1979	343.2	Apr. 30, 1979	341.4	Aug. 27, 1979	379.5
Dec. 12	357.4	Mar. 7	332.9	June 25	395.1		

471426118090401 Local number, 20/57-9J1.
 LOCATION.--Lat 47°14'26", long 118°09'04", Hydrologic Unit 17020015, at Keystone.
 Owner: Burlington Northern.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled uncased water-table well, depth 402 ft (122.5 m).
 DATUM.--Altitude of land-surface datum is 1,955 ft (589.8 m).
 PERIOD OF RECORD.--November 1965 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 105.25 ft (32.080 m) below land-surface datum, Apr. 10, 1966; lowest measured, 137.4 ft (41.88 m) below land-surface datum, Oct. 16, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 10, 1978	135.4	Mar. 7, 1979	124.0				

BENTON COUNTY

460237119383001. Local number, 7/25-36N1.
 LOCATION.--Lat 46°02'37", long 119°38'30", Hydrologic Unit 17070101, near Paterson.
 Owner: State of Washington, Department of Ecology.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 10 in (250 mm), total depth 860 ft (262.1 m), uncased depth interval from 195 to 185 ft (32.0 to 36.4 m).
 DATUM.--Altitude of land-surface datum is 730 ft (222 m).
 REMARKS.--Water level measured in piezometer.
 PERIOD OF RECORD.--November 1972 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 101.4 ft (30.91 m) below land-surface datum, June 23, 1976; lowest measured, 133.50 ft (40.69 m) below land-surface datum, Nov. 1, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 8, 1978	126.3	Mar. 15, 1979	125.2	May 10, 1979	120.5	July 9, 1979	116.7
Jan. 16	127.0						

460237119383005. Local number, 7/25-36N3.
 LOCATION.--Lat 46°02'37", long 119°38'30", Hydrologic Unit 17070101, near Paterson.
 Owner: State of Washington, Department of Ecology.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), total depth 860 ft (262.1 m), uncased depth interval from 728 to 755 ft (219.5 to 230.1 m).
 DATUM.--Altitude of land-surface datum is 730 ft (222 m).
 PERIOD OF RECORD.--November 1972 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 362.5 ft (110.49 m) below land-surface datum, Jan. 16, 1979; lowest measured, 374.30 ft (114.09 m) below land-surface datum, Nov. 1, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 8, 1978	370.2	Mar. 15, 1979	368.9	May 10, 1979	370.0	July 9, 1979	368.0
Jan. 16	362.5						

GROUND-WATER LEVELS
BENTON COUNTY--Continued

460257110383004 Local number 7/25-36N4.
LOCATION.--Lat 46°02'37", long 119°36'30", Hydrologic Unit 17070101, near Paterson.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), total depth 860 ft (262.1 m), uncased depth interval from 770 to 860 ft (234.7 to 262.1 m).
DATUM.--Altitude of land-surface datum is 730 ft (222 m).
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 361.9 ft (110.31 m) below land-surface datum, Jan. 18, 1979; lowest measured, 374.6 ft (114.18 m) below land-surface datum, July 9, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 8, 1978	369.5	Mar. 15, 1979	368.0	May 10, 1979	370.2	July 9, 1979	374.6
Jan. 18, 1979	361.9						

461226119220301. Local number, 8/28-6N1.
LOCATION.--Lat 46°12'26", long 119°42'03", Hydrologic Unit 17030003.
Owner: Dr. R. M. Debit.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 8 in (200 mm) depth 265 ft (80.8 m).
DATUM.--Altitude of land-surface datum 677 ft (206.3 m).
PERIOD OF RECORD.--December 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 124.8 ft (38.04 m) below land-surface datum, Nov. 2, 1978; lowest measured, 146.8 ft (44.74 m) below land-surface datum, June 1, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 2, 1978	124.88	May 10, 1979	131.24				

CHELAN COUNTY

47311012028001. Local number, 23/19-4E2.
LOCATION.--Lat 47°31'10", long 120°28'20", Hydrologic Unit 17020011, at Cashmere.
Owner: City of Cashmere.
AQUIFER.--Alluvial sand and gravel of Holocene Age.
WELL CHARACTERISTICS.--Dug public-supply water-table well, diameter 6 ft (1.8 m), depth 24 ft (7.3 m), lined with concrete.
DATUM.--Altitude of land-surface datum about 784 ft (239.0 m).
PERIOD OF RECORD.--June 1945 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.04 ft (3.36 m) below land-surface datum, Feb. 1, 1972; lowest measured, 21.78 ft (6.61 m) below land-surface datum, Sept. 4, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1978	18.95	Mar. 28, 1979	17.53	May 4, 1979	18.14	Aug. 23, 1979	20.05

DOUGLAS COUNTY

472648119525001. Local number, 23/23-36G1.
LOCATION.--Lat 47°26'48", long 119°52'50", Hydrologic Unit 17020012.
Owner: Palisades Irrigation District.
AQUIFER.--Glacial gravel of Holocene Age.
WELL CHARACTERISTICS.--Dug irrigation, water-table well, diameter 40 to 72 in (1,000 to 1,800 mm) depth 154 ft (46.9 m) lined with concrete to 152 ft (46.3 m).
DATUM.--Altitude of land-surface datum about 1,930 ft (589.3 m).
PERIOD OF RECORD.--April 1943, April 1953 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 132.15 ft (40.28 m) below land-surface datum, Apr. 29, 1959; lowest measured, 146.79 ft (44.74 m) below land-surface datum, Oct. 12, 1970.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO OCTOBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 8, 1978	141.5	Nov. 30, 1978	142.5	Mar. 30, 1979	141.73		

474855119503901. Local number, 27/26-25D1.
LOCATION.--Lat 47°48'53", long 119°30'39", Hydrologic Unit 17020012, near Mansfield.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 10 in (250 mm), total depth 760 ft (231.6 m), completed depth interval from 38 to 53 ft (11.6 to 16.2 m).
DATUM.--Altitude of land-surface datum is 2,215 ft (675.1 m).
REMARKS.--Water level measured in casing.
PERIOD OF RECORD.--April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.36 ft (4.68 m) below land-surface datum, May 24, 1974; lowest measured, 22.95 ft (7.00 m) below land-surface datum, Oct. 4, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 1, 1978	20.0	Feb. 5, 1979	20.4	June 11, 1979	20.9	Aug. 22, 1979	21.5
Dec. 4	20.0	Apr. 9	20.6				

A Well being pumped.

B Well recently pumped.

GROUND-WATER LEVELS

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DOUGLAS COUNTY--Continued

474855119503902. Local number, 27/26-25D2.
 LOCATION.--Lat 47°48'55", long 119°50'39", Hydrologic Unit 17020012, near Mansfield.
 Owner: State of Washington, Department of Ecology.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), total depth 760 ft (231.6 m), completed depth interval from 70 to 152 ft (21.3 to 46.3 m), uncased.
 DATUM.--Altitude of land-surface datum is 2,215 ft (675.1 m).
 REMARKS.--Water level measured in piezometer.
 PERIOD OF RECORD.--April 1974 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 91.83 ft (27.99 m) below land-surface datum, May 24, 1974; lowest measured, 102.48 ft (31.24 m) below land surface datum, Jan. 20, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 2, 1978	95.8	Feb. 5, 1979	94.5	June 11, 1979	93.2	Aug. 22, 1979	92.6
Dec. 4	94.9	Apr. 9	93.6				

474855119503904. Local number, 27/26-25D4.
 LOCATION.--Lat 47°48'55", long 119°50'39", Hydrologic Unit 17020012, near Mansfield.
 Owner: State of Washington, Department of Ecology.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), total depth 760 ft (231.6 m), completed depth interval from 490 to 610 ft (149.4 to 185.9 m), uncased, and perforated from 465 to 485 ft (141.7 to 147.8 m).
 DATUM.--Altitude of land-surface datum is 2,215 ft (675.1 m).
 REMARKS.--Water level measured in piezometer.
 PERIOD OF RECORD.--April 1974 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 277.40 ft (84.55 m) below land-surface datum, Apr. 20, 1974; lowest measured, 324.95 ft (99.04 m) below land-surface datum, July 23, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 2, 1978	321.5	Feb. 5, 1979	321.3	June 11, 1979	321.0	Aug. 22, 1979	320.9
Dec. 4	321.4	Apr. 9	321.2				

474855119503905. Local number, 27/26-25D5.
 LOCATION.--Lat 47°48'55", long 119°50'39", Hydrologic Unit 17020012, near Mansfield.
 Owner: State of Washington, Department of Ecology.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), total depth 760 ft (231.6 m), completed depth interval from 630 to 687 ft (192.0 to 209.4 m) uncased, and screened from 750 to 760 ft (228.6 to 231.6 m).
 DATUM.--Altitude of land-surface datum is 2,215 ft (675.1 m).
 REMARKS.--Water level measured in piezometer.
 PERIOD OF RECORD.--April 1974 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 320.2 ft (97.60 m) below land-surface datum, Aug. 21, 1974; lowest measured, 327.90 ft (99.94 m) below land-surface datum, Apr. 20, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 2, 1978	322.4	Feb. 5, 1979	321.6	June 11, 1979	321.5	Aug. 22, 1979	321.6
Dec. 4	321.6	Apr. 9	321.4				

FRANKLIN COUNTY

461705118570001. Local number, 9/31-4N1.
 LOCATION.--Lat 46°17'05", long 118°57'00", Hydrologic Unit 17060110, At Pasco.
 Owner: James N. Rogers.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 343 ft (104.5 m).
 DATUM.--Altitude of land-surface datum is 858 ft (260.6 m).
 PERIOD OF RECORD.--April 1961 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 266.60 ft (81.26 m) below land-surface datum, Mar. 19, 1975; lowest measured, 292.01 ft (89.00 m) below land-surface datum, Apr. 18, 1961.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Jan. 24, 1979	265.3	May 31, 1979	292.3A	July 26, 1979	268.6B	Sept. 26, 1979	268.2
Mar. 26	282.0						

462050119062001. Local number, 10/30-19E1 (formerly published as 19C1).
 LOCATION.--Lat 46°20'13", long 119°06'34", Hydrologic Unit 17020016.
 Owner: Andrus and Roberts Produce Company.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled industrial water-table well, diameter 6 in (150 mm), depth 395 ft (120.4 m).
 DATUM.--Altitude of land-surface datum is 303 ft (92.3 m).
 PERIOD OF RECORD.--April 1960 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 82.1 ft (25.02 m) below land-surface datum, Sept. 28, 1977; lowest measured, 141.75 ft (43.20 m) below land-surface datum, Apr. 28, 1960.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 29, 1978	96.58	Mar. 27, 1979	97.06	May 29, 1979	98.5	Sept. 25, 1979	96.1
Jan. 25, 1979	96.90						

A Well being pumped.

FRANKLIN COUNTY--Continued

462343119092802. Local number, 11/29-34J2.
 LOCATION.--Lat 46°23'38", long 119°08'28", Hydrologic Unit 17020016.
 Owner: Bob Ransome.
 AQUIFER.--Glacial gravel of Pleistocene Age.
 WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 8 in (200 mm), depth 211 ft (64.3 m), cased to 211 ft (64.3 m).
 DATUM.--Altitude of land-surface datum is 692 ft (210.9 m).
 PERIOD OF RECORD.--June 1976 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 139.8 ft (42.61 m) below land-surface datum, Sept. 25, 1979; lowest measured, 187.0 ft (57.00 m) below land-surface datum, June 1, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 29, 1978	152.2	May 29, 1979	153.2B	July 24, 1979	140.5	Sept. 25, 1979	139.8B
Mar. 27, 1979	147.7A						

462830119043301. Local number, 11/30-5B1.
 LOCATION.--Lat 46°28'30", long 119°04'38", Hydrologic Unit 17020016.
 Owner: Fred Holmes Community.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled public-supply water-table well, diameter 8 in (200 mm), depth 110 ft (33.5 m), cased to 29 ft (8.8 m).
 DATUM.--Altitude of land-surface datum is 753 ft (229.5 m).
 PERIOD OF RECORD.--January 1958 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 31.2 ft (9.51 m) below land-surface datum, Sept. 29, 1972; lowest measured, 61.05 ft (18.61 m) below land-surface datum, Apr. 15, 1958.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 29, 1978	33.75A	Mar. 27, 1979	40.00A	July 24, 1979	41.85A	Sept. 25, 1979	42.55A
Jan. 25, 1979	44.45A	May 29	36.75A				

463339119125601. Local number, 12/29-5D1.
 LOCATION.--Lat 46°33'39", long 119°12'56", Hydrologic Unit 17020016.
 Owner: James Reynolds.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 181 ft (55.2 m), cased to 157 ft (47.9 m).
 DATUM.--Altitude of land-surface datum is 610 ft (186 m).
 PERIOD OF RECORD.--January 1958 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 113.00 ft (34.442 m) below land-surface datum, Dec. 15, 1959; lowest measured, 147.1 ft (44.84 m) below land-surface datum, Sept. 29, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 29, 1978	115.8	Mar. 27, 1979	117.7	July 24, 1979	117.9B	Sept. 25, 1979	117.45
Jan. 24, 1979	119.0	May 29	119.3				

463251119001601. Local number, 12/30-12E1.
 LOCATION.--Lat 46°32'31", long 119°00'10", Hydrologic Unit 17020016, at Eltopia.
 Owner: Lea Hailey.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled stock water-table well, diameter 6 in (150 mm), depth 121 ft (36.9 m), cased to 120 ft (36.6 m).
 DATUM.--Altitude of land-surface datum is 676 ft (206.0 m).
 PERIOD OF RECORD.--October 1957 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 92.3 ft (28.13 m) below land-surface datum, Oct. 2, 1970; lowest measured, 108.69 ft (33.13 m) below land-surface datum, Apr. 16, 1959.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 30, 1978	101.1	Mar. 28, 1979	106.9A	July 24, 1979	103.57	Sept. 25, 1979	103.2
Jan. 25, 1979	103.4	May 29	103.57				

463641119001001. Local number, 13/30-13M1.
 LOCATION.--Lat 46°36'41", long 119°00'10", Hydrologic Unit 17020016, at Mesa.
 Owner: P. H. Taylor.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled domestic and stock water-table well, diameter 6 in (150 mm), depth 186 ft (56.7 m), cased to 11 ft (3.4 m).
 DATUM.--Altitude of land-surface datum is 956 ft (291.4 m).
 PERIOD OF RECORD.--March 1961 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 107.8 ft (32.86 m) below land-surface datum, Sept. 26, 1974; lowest measured, 141.72 ft (43.20 m) below land-surface datum, May 25, 1961.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 30, 1978	118.4	Sept. 24, 1979	114.7	Sept. 25, 1979	109.4		

A Well being pumped.
 B Well recently pumped.

GROUND-WATER LEVELS

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FRANKLIN COUNTY--Continued

463440118475001. Local number, 15/32-27N1.
 LOCATION.--Lat 46°34'35", long 118°47'41", Hydrologic Unit 17020016, at Connell.
 Owner: Dorsey Elgin.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 323 ft (98.5 m).
 DATUM.--Altitude of land-surface datum is 1,155 ft (352.0 m).
 PERIOD OF RECORD.--October 1950-52, August 1950, June 1958, April 1961 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 181.6 ft (56.88 m) below land-surface datum, May 29, 1979; lowest measured 281.47 ft (85.79 m) below land-surface datum, Oct. 4, 1950.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 1, 1978	187.4	Mar. 28, 1979	186.85	July 24, 1979	186.7	Sept. 25, 1979	186.6
Jan. 25, 1979	187.6	May 29	186.6				

464028119101601. Local number, 14/29-27E1.
 LOCATION.--Lat 46°40'28", long 119°10'16", Hydrologic Unit 17020016.
 Owner: U.S. Bureau of Reclamation.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled public-supply water-table well, diameter 8 in (200 mm), depth 498 ft (151.8 m), cased to 435 ft (132.6 m).
 DATUM.--Altitude of land-surface datum is 947 ft (288.6 m).
 PERIOD OF RECORD.--December 1959 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 70.9 ft (21.61 m) below land-surface datum, Jan. 24, 1979; lowest measured, 235.79 ft (71.87 m) below land-surface datum, Mar. 24, 1960.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 2, 1978	72.75	Mar. 27, 1979	71.8	July 24, 1979	139.7A	Sept. 25, 1979	75.7
Jan. 24, 1979	70.9	May 29	139.5A				

463950118564001. Local number, 14/31-29R1.
 LOCATION.--Lat 46°39'54", long 118°56'35", Hydrologic Unit 17020016.
 Owner: Keith Herrman.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 315 ft (96.0 m), cased to 104 ft (31.7 m).
 DATUM.--Altitude of land-surface datum is 1,118 ft (340.8 m).
 PERIOD OF RECORD.--April 1961 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured 176.7 ft (53.86 m) below land-surface datum, Oct. 2, 1975; lowest measured, 232.80 ft (70.96 m) below land-surface datum, Apr. 26, 1961.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 30, 1978	180.0	Mar. 28, 1979	183.0	July 24, 1979	181.7A	Sept. 25, 1979	181.3
Jan. 25, 1979	182.3	July 29	183.36				

463900118470001. Local number, 14/32-33Q1.
 LOCATION.--Lat 46°39'00", long 118°47'53", Hydrologic Unit 17020016, near Connell.
 Owner: J. W. Stine.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 281 ft (85.6 m), cased to 51 ft (15.5 m).
 DATUM.--Altitude of land-surface datum is 796 ft (242.6 m).
 PERIOD OF RECORD.--June 1952, October 1966 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 97.0 ft (29.57 m) below land-surface datum, June 11, 1952; lowest measured, 150.7 ft (49.84 m) below land-surface datum, May 29, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 1, 1978	125.8	Jan. 25, 1979	121.4	Mar. 28, 1979	121.4	May 29, 1979	130.7

A Well being pumped.

GRANT COUNTY

465539119352101. Local number, 17/26-34D1.

LOCATION.--Lat 46°55'39", long 119°33'21", Hydrologic Unit 17020015.

Owner: J. P. Needham.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 240 ft (73.2 m), cased to 60 ft (18.3 m).

DATUM.--Altitude of land-surface datum is 1,085 ft (330.7 m).

PERIOD OF RECORD.--September 1940, March 1956 to December 1958, March 1963 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.06 ft (0.02 m) below land-surface datum Mar. 3, 1971; lowest measured, 177.66 ft (54.15 m) below land-surface datum, Sept. 22, 1956.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1978	2.84	Jan. 25, 1979	3.37	May 2, 1979	3.38	Aug. 28, 1979	3.42
Dec. 19	4.19	Mar. 8	4.15	June 27	3.75		

465851119151501. Local number, 17/28-11F1.

LOCATION.--Lat 46°58'51", long 119°16'16", Hydrologic Unit 17020015.

Owner: U.S. Government, U.S. Bureau of Reclamation.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused artesian test well, diameter 2 in (50 mm), depth 168 ft (51.2 m), cased to 8 ft (2.4 m).

DATUM.--Land-surface datum is 1,051.6 ft (320.53 m) National Geodetic Vertical Datum of 1929.

PERIOD OF RECORD.--March 1950 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured 90.88 ft (27.70 m) below land-surface datum, July 22, 1956; lowest measured, 141.01 ft (42.98 m) below land-surface datum, Jan. 31, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 3, 1978	104.4	Mar. 9, 1979	102.1				

465903119070901. Local number, 17/29-12C1.

LOCATION.--Lat 46°59'03", long 119°07'09", Hydrologic Unit 17020015.

Owner: Rogers Hayes.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 515 ft (96.0 m).

DATUM.--Altitude of land-surface datum is 1,212 ft (369.4 m).

PERIOD OF RECORD.--September 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 33.35 ft (10.16 m) below land-surface datum, Oct. 17, 1967; lowest measured, 220.13 ft (67.10 m) below land-surface datum, Aug. 31, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1978	39.5	Jan. 26, 1979	47.0	May 3, 1979	52.58	Aug. 29, 1979	40.2
Dec. 20	43.97	Mar. 9	50.05	June 26	47.2		

465026119010601. Local number, 17/30-26C1.

LOCATION.--46°56'26", long 119°01'06", Hydrologic Unit 17020015.

Owner: Albert Widmer.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 400 ft (121.9 m).

DATUM.--Altitude of land-surface datum is 1,402 ft (427.3 m).

PERIOD OF RECORD.--August 1955, June 1962 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 236.15 ft (71.979 m) below land-surface datum, Feb. 28, 1973; lowest measured, 292.03 ft (89.01 m) below land-surface datum, Oct. 3, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1978	254.4	Jan. 26, 1979	254.0	May 3, 1979	253.9	Aug. 29, 1979	255.2
Dec. 30	254.06	Mar. 9	254.0	June 28	254.8		

470352119435201. Local number, 18/25-8M1.

LOCATION.--Lat 47°03'52", long 119°43'32", Hydrologic Unit 17020015.

Owner: Metropolitan Life.

AQUIFER.--Glacial sand of Pleistocene Age.

WELL CHARACTERISTICS.--Dug unused water-table well, diameter 36 in (900 mm), depth 112 ft (34.1 m), lined with concrete to 112 ft (34.1 m).

DATUM.--Altitude of land-surface datum is 1,179 ft (359.4 m).

PERIOD OF RECORD.--November 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.83 ft (0.863 m) below land-surface datum, June 21, 1960; lowest measured, 98.76 ft (30.10 m) below land-surface datum, Apr. 27, 1953.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1978	51.3	Jan. 25, 1979	50.82	May 2, 1979	58.50C	Aug. 28, 1979	36.57C
Dec. 19	50.97	Mar. 8	50.77	June 27	42.36C		

B Well recently pumped.

C Nearby well being pumped.

GROUND WATER LEVELS

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GRANT COUNTY--Continued

470359119433001. Local number, 18/25-8N1.

LOCATION.--Lat 47°03'39", long 119°43'30", Hydrologic Unit 17020015.

Owner: Metropolitan Life.

AQUIFER.--Sand of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled stock supply water-table well, diameter 6 in (150 mm), depth 323 ft (98.5 m).

DATUM.--Altitude of land-surface datum is 1,173 ft (357.5 m).

PERIOD OF RECORD.--May 1942, September 1949 to November 1960, October 1963 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.74 ft (7.24 m) below land-surface datum, Jan. 20, 1970; lowest measured, 97.42 ft (29.69 m) below land-surface datum, June 23, 1953.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, FEBRUARY 1975 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Feb. 21, 1975	28.07	Apr. 1, 1976	27.70	Feb. 15, 1977	27.69	Dec. 19, 1978	28.27
Apr. 16	33.06	May 26	36.51	Apr. 13	35.38	Jan. 25, 1979	27.98
June 17	31.13	July 20	40.04	June 14	38.90	Mar. 2	27.79
Aug. 26	40.97	Sept. 8	34.39	Aug. 2	31.55	May 2	35.18
Oct. 21	29.86	Oct. 20	29.88	Feb. 16, 1978	27.97	June 27	35.05
Dec. 17	28.35	Dec. 7	28.07	Oct. 13	29.30	Aug. 28	33.99
Feb. 11, 1976	27.70						

470148119412601. Local number, 18/25-28B1.

LOCATION.--Lat 47°01'48", long 119°41'26", Hydrologic Unit 17020015.

Owner: Farm Management Service.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, depth 735 ft (224.0 m).

DATUM.--Altitude of land-surface datum is 1,151 ft (350.8 m).

PERIOD OF RECORD.--June 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 48.13 ft (14.67 m) below land-surface datum, Feb. 11, 1976; lowest measured, 225.8 ft (68.82 m) below land-surface datum, Sept. 9, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1978	280. A	Jan. 25, 1979	56.2	May 2, 1979	113.1	Aug. 28, 1979	123.3A
Dec. 19	84.0	Mar. 8	53.0	June 27	123.2A		

470030119390301. Local number, 18/25-35K1.

LOCATION.--Lat 47°00'30", long 119°39'03", Hydrologic Unit 17020015.

Owner: Farm Management Service.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, depth 960 ft (292.6 m).

DATUM.--Altitude of land-surface datum is 1,140 ft (347.5 m).

PERIOD OF RECORD.--May 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 56.4 ft (17.19 m) below land-surface datum, Feb. 15, 1977; lowest measured, 236 ft (71.9 m) below land-surface datum, Oct. 13, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1978	236.	Jan. 25, 1979	160.	May 2, 1979	214.A	Aug. 28, 1979	313.A
Dec. 19	172.	Mar. 8	167.	June 27	329.A		

470445119160301. Local number, 18/28-2LI.

LOCATION.--Lat 47°04'45", long 119°16'03", Hydrologic Unit 17020015.

Owner: Dune Lake Company.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 184 ft (56.1 m).

DATUM.--Altitude of land-surface datum is 1,128 ft (343.8 m).

PERIOD OF RECORD.--October 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.45 ft (0.14 m) below land-surface datum, Sept. 4, 1970; lowest measured, 74.25 ft (22.63 m) below land-surface datum, May 14, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1978	3.60	Mar. 8, 1979	4.97				

470233119115601. Local number, 18/29-20B1.

LOCATION.--Lat 47°02'33", long 119°11'56", Hydrologic Unit 17020015.

Owner: R. Debeaumont.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled stock-supply water-table well, diameter 6 in (150 mm), depth 219 ft (66.8 m).

DATUM.--Altitude of land-surface datum is 1,179 ft (359.4 m).

PERIOD OF RECORD.--October 1949 to February 1950, August 1954 to October 1964, March 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.71 ft (1.436 m) below land-surface datum, Apr. 24, 1961; lowest measured, 210.79 ft (64.249 m) below land-surface datum, Sept. 17, 1949.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1978	46.6	Jan. 26, 1979	51.3	May 3, 1979	56.67B	Aug. 29, 1979	46.85
Dec. 20	49.12	Mar. 9	54.11	June 26	52.07		

A Well being pumped.

B Well recently pumped.

GROUND-WATER LEVELS

GRANT COUNTY--Continued

470417119043401. Local number, 18/30-8C1.

LOCATION.--Lat 47°04'17", long 119°04'34", Hydrologic Unit 17020015.

Owner: Wayne Goff.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (200 mm), depth 228 ft (69.5 m).

DATUM.--Altitude of land-surface datum is 1,225 ft (373.4 m).

PERIOD OF RECORD.--May 1951 to October 1951, October 1954 to April 1956, February 1958 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 52.25 ft (15.93 m) below land-surface datum, Sept. 16, 1969; lowest measured, 181.26 ft (55.25 m) below land-surface datum, Aug. 31, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1978	58.07	Jan. 26, 1979	67.96	May 3, 1979	73.63	Aug. 29, 1979	58.9
Dec. 20	63.96	Mar. 9	71.57	June 28	65.3		

470022119023801. Local number, 18/30-34M1.

LOCATION.--Lat 47°00'22", long 119°02'38", Hydrologic Unit 17020015.

Owner: N. Yamamoto.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 147 ft (44.8 m).

DATUM.--Altitude of land-surface datum is 1,174 ft (357.8 m).

PERIOD OF RECORD.--February 1943 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 35.10 ft (10.698 m) below land-surface datum Feb. 28, 1973; lowest measured, 108.70 ft (33.13 m) below land-surface datum, Oct. 29, 1947.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1978	43.7	Jan. 26, 1979	46.97B	May 3, 1979	47.06	Aug. 29, 1979	43.1
Dec. 20	46.48	Mar. 9	47.36B	June 28	42.3		

470627119394701. Local number, 19/25-26N1.

LOCATION.--Lat 47°06'27", long 119°39'47", Hydrologic Unit 17020015.

Owner: Rudy Stetner.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 110 ft (33.5 m).

DATUM.--Altitude of land-surface datum is 1,185 ft (361.2 m).

PERIOD OF RECORD.--September 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.09 ft (14.963 m) below land-surface datum, Mar. 5, 1971; lowest measured, 106.63 ft (32.501 m) below land-surface datum, Mar. 3, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1978	62.7	Jan. 24, 1979	57.5	May 2, 1979	54.71	Aug. 28, 1979	64.64
Dec. 19	59.44	Mar. 8	55.55	June 27	59.57		

470631119420501. Local number, 19/25-28M1.

LOCATION.--Lat 47°06'31", long 119°42'05", Hydrologic Unit 17020015.

Owner: Edwin A. Wyatt.

AQUIFER.--Glacial sand of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (200 mm), depth 124 ft (37.8 m).

DATUM.--Altitude of land-surface datum is 1,194 ft (363.9 m).

PERIOD OF RECORD.--November 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.00 ft (11.28 m) below land-surface datum, Apr. 19, 1972; lowest measured, 114.47 ft (34.89 m) below land-surface datum, Apr. 7, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1978	42.43	Jan. 24, 1979	39.55	May 2, 1979	39.16	Aug. 28, 1979	46.14
Dec. 19	40.49	Mar. 8	38.71	June 27	43.04		

470759119344501. Local number, 19/26-20A1.

LOCATION.--Lat 47°07'59", long 119°34'45", Hydrologic Unit 17020015.

Owner: Joe Tainaka.

AQUIFER.--Glacial sand of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 150 ft (45.7 m), cased to 100 ft (30.5 m).

DATUM.--Altitude of land-surface datum is 1,224 ft (373.1 m).

PERIOD OF RECORD.--March 1939-August 1940, April 1942, September 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 61.14 ft (18.635 m) below land-surface datum, Mar. 8, 1979; lowest measured, 151.45 ft (46.16 m) below land-surface datum, Apr. 11, 1952.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1978	65.5	Jan. 24, 1979	63.4	May 2, 1979	63.20	Aug. 28, 1979	68.0
Dec. 19	63.57	Mar. 8	61.14	June 27	68.2		

B Well recently pumped.

GROUND-WATER LEVELS

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GRANT COUNTY--Continued

470608119331502. Local number 19/26-34D1.

LOCATION.--Lat 47°06'08", long 119°33'15", Hydrologic Unit 17020015.

Owner: Washington State Highways.

AQUIFER.--Glacial sand of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 96 ft (29.3 m), cased to 65 ft (19.8 m).

DATUM.--Altitude of land-surface datum is 1,168 ft (356.0 m).

PERIOD OF RECORD.--March 1939-July 1963, November 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.06 ft (7.638 m) below land-surface datum, Jan. 24, 1979; lowest measured, 101.53 ft (30.946 m) below land-surface datum, Sept. 16, 1959.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1978	25.68	Jan. 24, 1979	25.06	May 2, 1979	25.12	Aug. 28, 1979	25.40
Dec. 19	25.24	Mar. 8	25.11	June 27	25.38		

470805119263801. Local number, 19/27-16N1.

LOCATION.--Lat 47°08'05", long 119°26'38", Hydrologic Unit 17020015.

Owner: Wes Avara.

AQUIFER.--Glacial gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 84 in (2,100 mm), depth 74 ft (22.6 m), lined with concrete to 65 ft (19.8 m).

DATUM.--Altitude of land-surface datum is 1,094 ft (333.5 m).

PERIOD OF RECORD.--December 1942 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 47.37 ft (14.44 m) below land-surface datum, Mar. 14, 1974; lowest measured, 81.77 ft (24.92 m) below land-surface datum, Oct. 28, 1947.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1978	49.2	Mar. 8, 1979	49.20				

470652119230301. Local number, 19/27-26A1.

LOCATION.--Lat 47°06'52", long 119°23'03", Hydrologic Unit 17020015.

Owner: C. M. Grant.

AQUIFER.--Glacial gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Dug domestic and irrigation water-table well, diameter 48 to 6 in (1,200 to 150 mm), depth 52 ft (15.8 m).

DATUM.--Altitude of land-surface datum is 1,073 ft (327.1 m).

PERIOD OF RECORD.--November 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.68 ft (7.52 m) below land-surface datum, Mar. 14, 1974; lowest measured, 41.86 ft (12.76 m) below land-surface datum, July 22, 1953.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1978	31.9A	Mar. 8, 1979	27.49B				

470658119261401. Local number, 19/27-28B1.

LOCATION.--Lat 47°06'58", long 119°26'14", Hydrologic Unit 17020015.

Owner: John Quick.

AQUIFER.--Gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 90 ft (27.4 m).

DATUM.--Altitude of land-surface datum is 1,101 ft (335.6 m).

PERIOD OF RECORD.--December 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 59.30 ft (18.08 m) below land-surface datum, Mar. 10, 1976; lowest measured, 63.84 ft (19.458 m) below land-surface datum, Mar. 8, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1978	62.0A	Mar. 8, 1979	60.5B				

471020119210701. Local number, 19/28-6C1.

LOCATION.--Lat 47°10'20", long 119°21'07", Hydrologic Unit 17020015.

Owner: Ray Turpinseed (formerly Troy Farms Inc.)

AQUIFER.--Glacial gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 48 in (1,200 mm), depth 57 ft (11.3 m), lined with concrete to 37 ft (11.3 m).

DATUM.--Altitude of land-surface datum is 1,078 ft (328.6 m).

PERIOD OF RECORD.--March 1939-April 1942, August 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.10 ft (8.870 m) below land-surface datum, June 24, 1971; lowest measured, 38.7 ft (11.80 m) below land-surface datum, Dec. 9, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1978	33.0	Jan. 24, 1979	35.90	May 1, 1979	33.16	Aug. 28, 1979	33.03
Dec. 19	36.93	Mar. 8	35.56	June 26	33.40		

A Well being pumped.

B Well recently pumped.

GRANT COUNTY--Continued

470913119192401. Local number, 19/28-8H2.

LOCATION.--Lat 47°09'13", long 119°19'24", Hydrologic Unit 17020015.

Owner: Mr. Baker.

AQUIFER.--Glacial gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Dug irrigation and domestic water-table well, diameter 10 in (250 mm), depth 48 ft (14.6 m),

cased to 48 ft (14.6 m).

DATUM.--Altitude of land-surface datum is 1,090 ft (332.2 m).

PERIOD OF RECORD.--November 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 39.43 ft (12.02 m) below land-surface datum, Aug. 3,

1977; lowest measured, 48.35 ft (14.74 m) below land-surface datum, Dec. 13, 1960.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1978	45.03	Jan. 24, 1979	45.82	May 1, 1979	43.33	Aug. 28, 1979	43.0
Dec. 18	45.55	Mar. 8	45.27	June 26	43.7A		

470935119174201. Local number, 19/28-10D1.

LOCATION.--Lat 47°09'55", long 119°17'42", Hydrologic Unit 17020015.

Owner: Harold Mathenia.

AQUIFER.--Glacial gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Dug and drilled domestic water-table well, diameter 40 to 6 in (1,000 to 150 mm), depth

102 ft (31.1 m).

DATUM.--Altitude of land-surface datum is 1,114 ft (339.5 m).

PERIOD OF RECORD.--November 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 47.1 ft (14.36 m) below land-surface datum, Sept. 12,

1967; lowest measured, 62.08 ft (18.92 m) below land-surface datum, Aug. 30, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1978	50.8A	Mar. 8, 1979	52.7				

470753119192402. Local number, 19/28-20A1.

LOCATION.--Lat 47°07'53", long 119°19'24", Hydrologic Unit 17020015.

Owner: M. C. Wilson.

AQUIFER.--Glacial gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 36 in (900 mm), depth 39 ft (11.9 m), lined with

concrete to 38 ft (11.6 m).

DATUM.--Altitude of land-surface datum is 1,080 ft (329 m).

PERIOD OF RECORD.--November 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.11 ft (9.787 m) below land-surface datum, July 20,

1960; lowest measured, 46.95 ft (14.31 m) below land-surface datum, Mar. 1, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1978	34.9	Jan. 24, 1979	37.61	May 1, 1979	34.78	Aug. 28, 1979	34.29
Dec. 18	43.41	Mar. 8	36.99	June 26	34.72		

470621119144401. Local number, 19/28-25L1.

LOCATION.--Lat 47°06'21", long 119°14'44", Hydrologic Unit 17020015, at Moses Lake.

Owner: Paul Landis.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm), depth 492 ft (150.0 m).

DATUM.--Altitude of land-surface datum is 1,192 ft (363.3 m).

PERIOD OF RECORD.--October 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 40.3 ft (12.28 m) below land-surface datum, Sept. 5,

1974; lowest measured, 185.88 ft (56.656 m) below land-surface datum, Aug. 29, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1978	42.4	Jan. 24, 1979	44.49	May 1, 1979	43.58	Aug. 28, 1979	41.82
Dec. 18	43.62	Mar. 8	45.40	June 26	43.74		

470811119074301. Local number, 19/29-14J1.

LOCATION.--Lat 47°08'11", long 119°07'43", Hydrologic Unit 17020015.

Owner: Jim Abram.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 12 in (300 mm), depth 368 ft (112.2 m).

DATUM.--Altitude of land-surface datum is 1,357 ft (413.6 m).

PERIOD OF RECORD.--December 1950 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 132.21 ft (40.30 m) below land-surface datum, Dec. 30,

1964; lowest measured, 234.03 ft (71.33 m) below land-surface datum, Oct. 27, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1978	146.87	Jan. 26, 1979	142.4	May 3, 1979	134.7A	Aug. 29, 1979	158.5A
Dec. 20	143.7	Mar. 9	145.3A	June 28	163.1		

A Well being pumped.

GROUND-WATER LEVELS

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GRANT-COUNTY--Continued

470729119101501. Local number, 19/29-22E1.
LOCATION.--Lat 47°07'29", long 119°10'15", Hydrologic Unit 17020015.

Owner: Carnation Company.

AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 14 in (350 mm), depth 560 ft (170.7 m).

DATUM.--Altitude of land-surface datum is 1,293 ft (394.1 m).

PERIOD OF RECORD.--June 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 48. ft (14.6 m) below land-surface datum, Oct. 18, 1978; lowest measured, 87.3 ft (26.61 m) below land-surface datum, Mar. 15, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1978	48.	Mar. 9, 1979	71.				

470626119101801. Local number, 19/29-28J1.
LOCATION.--Lat 47°06'26", long 119°10'18", Hydrologic Unit 17020015.

Owner: J. E. Anderson.

AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, depth 800 ft (243.8 m).

DATUM.--Altitude of land-surface datum is 1,235 ft (376.4 m).

PERIOD OF RECORD.--June 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.8 ft (10.0 m) below land-surface datum, Oct. 14, 1977; lowest measured, 48.67 ft (14.835 m) below land-surface datum, Sept. 9, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1978	46.40B	Mar. 9, 1979	39.6				

470952118592701. Local number, 19/30-11L1.
LOCATION.--Lat 47°09'52", long 118°59'27", Hydrologic Unit 17020015, near Ruff.

Owner: A. L. Ramm.

AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-level well, diameter 12 in (300 mm), depth 523 ft (159.4 m), cased to 37 ft (11.3 m).

DATUM.--Altitude of land-surface datum is 1,420 ft (433 m).

PERIOD OF RECORD.--January 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 257.0 ft (78.33 m) below land-surface datum, Apr. 2, 1976; lowest measured, 405 ft (123.4 m) below land-surface datum, Oct. 11, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 11, 1978	405.	Mar. 9, 1979	380.	June 28, 1979	405.A	Aug. 29, 1979	424.A
Dec. 20	389	May 3	396.A				

471955119324701. Local number, 21/26-10L2.
LOCATION.--Lat 47°19'55", long 119°32'47", Hydrologic Unit 17020015.

Owner: D. L. Nelson.

AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (200 mm), depth 122 ft (37.2 m), cased to 100 ft (30.5 m).

DATUM.--Altitude of land-surface datum is 1,260 ft (384 m).

PERIOD OF RECORD.--September 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.87 ft (6.06 m) below land-surface datum, Aug. 28, 1975; lowest measured, 68.27 ft (20.81 m) below land-surface datum, Dec. 7, 1949.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1978	20.16	Jan. 23, 1979	23.03	Apr. 30, 1979	27.35	Aug. 28, 1979	22.26
Dec. 13	21.79	Mar. 6	21.91	June 26	22.74		

472009119300101. Local number, 21/26-12F1.
LOCATION.--Lat 47°20'09", long 119°30'01", Hydrologic Unit 17020015, near Ephrata.

Owner: Grant County.

AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm), depth 183 ft (55.8 m).

DATUM.--Altitude of land-surface datum is 1,259 ft (383.7 m).

PERIOD OF RECORD.--December 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 79.85 ft (24.338 m) below land-surface datum, Apr. 13, 1978; lowest measured, 117.77 ft (35.90 m) below land-surface datum, Mar. 13, 1950.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1978	83.3	Jan. 23, 1979	83.3	May 1, 1979	83.3	Aug. 28, 1979	83.3
Dec. 13	83.3	Mar. 6	83.4	June 26	83.3		

A Well being pumped.
B Well recently pumped.

GROUND-WATER LEVELS
GRANT COUNTY--Continued

473644119161101. Local number, 24/28-2C1.
LOCATION.--Lat 47°36'44", long 119°16'11", Hydrologic Unit 17020014, near Coulee City.
Owner: Vern Adams.

AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 400 ft (121.9 m).
DATUM.--Altitude of land-surface datum is 1,661 ft (506.3 m).
PERIOD OF RECORD.--October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 52.7 ft (16.06 m) below land-surface datum, Feb. 29, 1968; lowest measured, 123.5 ft (36.64 m) below land-surface datum, Aug. 23, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 16, 1978	86.1	Jan. 23, 1979	97.5B	Apr. 30, 1979	109.8	Aug. 27, 1979	119.0
Dec. 13	95.8B	Mar. 5	95.6	June 25	122.8		

473505119085701. Local number, 24/29-10R1.
LOCATION.--Lat 47°35'05", long 119°08'57", Hydrologic Unit 17020014.
Owner: Harold Isaak.

AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 7 in (175 mm), depth 120 ft (36.6 m).
DATUM.--Altitude of land-surface datum is 1,771 ft (539.8 m).
PERIOD OF RECORD.--October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 79.22 ft (24.15 m) below land-surface datum, Mar. 12, 1975; lowest measured, 93.84 ft (28.60 m) below land-surface datum, Apr. 14, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 16, 1978	83.22	Jan. 23, 1979	83.7	Apr. 30, 1979	83.5	Aug. 27, 1979	84.1
Dec. 13	84.42	Mar. 5	83.21	June 25	83.9		

KITTITAS COUNTY

470052120290001. Local number, 18/19-32B1.
LOCATION.--Lat 47°00'52", long 120°29'00", Hydrologic Unit 17030001, near Ellensburg.
Owner: Department of Game.

AQUIFER.--Sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 10 in (250 mm), depth 267 ft (81.4 m), cased to 100 ft (30.5 m).
DATUM.--Altitude of land-surface datum is 1,723 ft (525.2 m).
PERIOD OF RECORD.--June 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.0 ft (5.79 m) below land-surface datum, Feb. 29, 1978; lowest measured, 40.01 ft (12.20 m) below land-surface datum, June 5, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 6, 1979	28.4						

KLICKITAT COUNTY

454325120554301. Local number, 3/15-28A1.
LOCATION.--Lat 45°43'25", long 120°55'43", Hydrologic Unit 17070106.
Owner: Frank Garner.

AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 85 ft (25.9 m).
DATUM.--Altitude of land-surface datum is 1,600 ft (488 m).
PERIOD OF RECORD.--August 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.86 ft (2.09 m) below land-surface datum, Apr. 8, 1965; lowest measured, 18.2 ft (5.54 m) below land-surface datum, Oct. 12, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 5, 1978	15.7	Mar. 15, 1979	13.2				

455008120561301. Local number, 4/15-16F1.
LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 17070106, near Blockhouse.
Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 12 in (300 mm), depth 595 ft (181.4 m), 12 in (300 mm) diameter casing to 331 ft (100.9 m), perforated 40 to 331 ft (12.2 to 100.9 m).
DATUM.--Altitude of land-surface datum is 1,590 ft (485 m).
REMARKS.--Monitored depth interval from 40 to 210 ft (12.2 to 64.0 m), water level measured in piezometer.
PERIOD OF RECORD.--March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.1 ft (3.38 m) below land-surface datum, Apr. 12, 1976; lowest measured, 21.1 ft (6.43 m) below land-surface datum, Oct. 4, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1978	21.1	Mar. 15, 1979	14.7				

B Well recently pumped.

GROUND-WATER LEVELS

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KLICKITAT COUNTY--Continued

455008120561302. Local number, 4/15-16F2.

LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 170701016, near Blockhouse.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 in (300 mm), depth 595 ft (181.4 m), 12 in (300 mm) diameter casing to 331 ft (100.9 m), perforated 40 to 331 ft (12.2 to 100.9 m).

DATUM.--Altitude of land-surface datum is 1,590 ft (485 m).

REMARKS.--Monitored depth interval from 215 to 330 ft (65.5 to 100.6 m), water level measured in piezometer.

PERIOD OF RECORD.--March 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured 11.0 ft (3.35 m) below land-surface datum, Apr. 12, 1976;

lowest measured, 21.3 ft (6.49 m) below land-surface datum, Oct. 4, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1978	21.3	Mar. 15, 1979	15.0				

455008120561303. Local number, 4/15-16F3.

LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 17070106, near Blockhouse.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 in (300 mm), depth 595 ft (181.4 m), 12 in (300 mm) diameter casing to 331 ft (100.9 m), perforated 40 to 331 ft (12.2 to 100.9 m).

DATUM.--Altitude of land-surface datum is 1,590 ft (485 m).

REMARKS.--Monitored depth interval from 335 to 440 ft (102.1 to 134.1 m), water level measured in piezometer.

PERIOD OF RECORD.--March 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.6 ft (3.54 m) below land-surface datum, Apr. 12, 1976;

lowest measured, 21.8 ft (6.64 m) below land-surface datum, Oct. 4, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1978	21.8	Mar. 15, 1979	20.2				

455008120561304. Local number, 4/15-16F4.

LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 17070106, near Blockhouse.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm), depth 595 ft (181.4 m), 12 in (300 mm) diameter casing to 331 ft (100.9 m), perforated 40 to 331 ft (12.2 to 100.9 m).

DATUM.--Altitude of land-surface datum is 1,590 ft (485 m).

REMARKS.--Monitored depth interval from 500 to 580 ft (152.4 to 176.8 m), water level measured in piezometer.

PERIOD OF RECORD.--March 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 197.0 ft (60.05 m) below land-surface datum, Mar. 15, 1978, lowest measured, 223.60 ft (68.153 m) below land-surface datum, Apr. 30, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1978	199.1	Mar. 15, 1979	197.2				

454715120434901. Local number, 4/17-31LL.

LOCATION.--Lat 45°47'15", long 120°43'49", Hydrologic Unit 17070106.

Owner: T. V. Wilkins.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (400 mm), depth 139 ft (42.4 m).

DATUM.--Altitude of land-surface datum is 1,893 ft (573.9 m).

PERIOD OF RECORD.--August 1957 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.99 ft (0.30 m) below land-surface datum, Feb. 16, 1966; lowest measured, 8.01 ft (2.44 m) below land-surface datum, Sept. 9, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 5, 1978	5.5	Mar. 15, 1979	3.05				

455948120175201. Local number, 6/20-22D1.

LOCATION.--Lat 45°59'48", long 120°17'52", Hydrologic Unit 17070101, near Bickleton.

Owner: L. Whitmore.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 8 in (200 mm), depth 44 ft (13.4 m).

DATUM.--Altitude of land surface datum is 3,005 ft (915.9 m).

PERIOD OF RECORD.--May 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.30 ft (1.01 m) below land-surface datum, Apr. 9, 1971; lowest measured, 31.27 ft (9.53 m) below land-surface datum, Aug. 25, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 5, 1978	28.4	Mar. 15, 1979	27.588				

B Well recently pumped.

LINCOLN COUNTY

471937118544402. Local number, 21/31-10M2.

LOCATION.--47°19'37", long 118°54'44", Hydrologic Unit 17020015, near Odessa.

Owner: Mrs. Robert Schell.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled oil-test well, diameter 10 in (250 mm), depth 4,682 ft (1,427.1 m), cased to 98 ft (29.9 m).

DATUM.--Altitude of land-surface datum is 1,610 ft (491 m).

REMARKS.--Monitored depth interval from 98 to 735 ft (29.9 to 224.0 m), water level measured in piezometer.

PERIOD OF RECORD.--November 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 230.25 ft (70.18 m) below land-surface datum, Jan. 8, 1973; lowest measured, 286.8 ft (87.42 m) below land-surface datum, June 25, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 11, 1978	285.0	Jan. 22, 1979	276.8	Apr. 30, 1979	280.5	Aug. 27, 1979	282.4
Dec. 12	278.5	Mar. 6	275.9	June 25	286.8		

471937118544403. Local number, 21/31-10M3.

LOCATION.--Lat 47°19'37", long 118°54'44", Hydrologic Unit 17020015, near Odessa.

Owner: Mrs. Robert Schell.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled oil-test well, diameter 10 in (250 mm), depth 4,682 ft (1,427.1 m), cased to 98 ft (29.9 m).

DATUM.--Altitude of land-surface datum is 1,610 ft (491 m).

REMARKS.--Monitored depth interval from 742 to 1,480 ft (226.2 to 451.1 m), water level measured in piezometer.

PERIOD OF RECORD.--November 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 231.32 ft (70.51 m) below land-surface datum, Jan. 8, 1973; lowest measured, 327.9 ft (99.94 m) below land-surface datum, June 25, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 11, 1978	324.7	Jan. 22, 1979	303.9	Apr. 30, 1979	314.3	Aug. 27, 1979	318.8
Dec. 12	306.0	Mar. 6	302.4	June 25	327.9		

471937118544404. Local number, 21/31-10M4.

LOCATION.--Lat 47°19'37", long 118°54'44", Hydrologic Unit 17020015, near Odessa.

Owner: Mrs. Robert Schell.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled oil-test well, diameter 10 in (250 mm), depth 4,682 ft (1,427.1 m), cased to 98 ft (29.9 m).

DATUM.--Altitude of land-surface datum is 1,610 ft (491 m).

REMARKS.--Monitored depth interval from 1,488 to 2,300 ft (453.5 to 701.0 m), water level measured in piezometer.

PERIOD OF RECORD.--November 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 224.56 ft (68.45 m) below land-surface datum, May 24, 1976; lowest measured, 237.8 ft (72.48 m) below land-surface datum, Aug. 27, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 11, 1978	256.3	Jan. 22, 1979	255.2	Apr. 30, 1979	253.7	Aug. 27, 1979	257.8
Dec. 12	256.1	Mar. 6	254.6	June 25	256.4		

471622118572501. Local number, 21/31-32D1.

LOCATION.--Lat 47°16'22", long 118°57'25", Hydrologic Unit 17020015.

Owner: Fred Kissler.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm) from 0 to 385 ft (0 to 117.3 m), 8 in (200 mm) diameter from 385 to 708 ft (117.3 to 215.8 m), total depth 708 ft (215.8 m).

DATUM.--Altitude of land-surface datum is 1,669 ft (508.7 m).

PERIOD OF RECORD.--April 1964 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 255.0 ft (77.7 m) below land-surface datum, Feb. 28, 1965; lowest measured, 454.2 ft (138.44 m) below land-surface datum, Oct. 11, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 11, 1978	454.2						

471915118362401. Local number, 21/33-12P1.

LOCATION.--Lat 47°19'15", long 118°36'24", Hydrologic Unit 17020013.

Owner: King Brothers.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 15 in (375 mm), depth 403 ft (122.8 m), cased to 48 ft (14.6 m).

DATUM.--Altitude of land-surface datum is 1,602 ft (488.3 m).

PERIOD OF RECORD.--October 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.78 ft (3.90 m) below land-surface datum, Feb. 17, 1967; lowest measured, 50 ft (15.2 m) below land-surface datum, July 14, 1966.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 11, 1978	75.0A	Mar. 7, 1979	22.9				

A Well being pumped.

GROUND-WATER LEVELS

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LINCOLN COUNTY--Continued

472513118053801. Local number, 22/37-12C1.

LOCATION.--Lat 47°25'13", long 118°05'38", Hydrologic Unit 17020013.

Owner: Wesley Bly.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (200 mm), depth 380 ft (115.8 m), cased to 40 ft (12.2 m).

DATUM.--Altitude of land-surface datum is 2,229 ft (679.4 m).

PERIOD OF RECORD.--November 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 62.11 ft (18.93 m) below land-surface datum, Jan. 26, 1971; lowest measured, 135.0 ft (41.15 m) below land-surface datum, Oct. 5, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 5, 1978	135.0	Mar. 7, 1979	134.9				

472839118481901. Local number, 23/32-20A1.

LOCATION.--Lat 47°28'39", long 118°48'19", Hydrologic Unit 17020013.

Owner: L. J. Bonney.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 16 in (400 mm), depth 710 ft (216.4 m), cased to 644 ft (196.3 m).

DATUM.--Altitude of land-surface datum is 1,855 ft (565.4 m).

PERIOD OF RECORD.--October 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 173.55 ft (52.898 m) below land-surface datum, Mar. 14, 1967; lowest measured, 348 ft (106.1 m) below land-surface datum, Oct. 14, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 6, 1979	294.						

472802118165401. Local number, 23/36-21P1.

LOCATION.--Lat 47°28'02", long 118°16'54", Hydrologic Unit 17020013, near Harrington.

Owner: Harry Moeller.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 242 ft (73.8 m), cased to 17 ft (5.2 m).

DATUM.--Altitude of land-surface datum is 2,138 ft (651.7 m).

PERIOD OF RECORD.--November 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 51.5 ft (15.70 m) below land-surface datum, Jan. 28, 1970; lowest measured, 92.9 ft (28.32 m) below land-surface datum, July 9, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 5, 1978	67.4	Mar. 7, 1979	59.1				

4734331185600301. Local number, 24/31-16E1.

LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, water table well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 60 ft (18.3 m).

DATUM.--Altitude of land surface datum is 1,845 ft (562.4 m).

REMARKS.--Monitored depth interval from 60 to 316 ft (18.3 to 96.3 m), water level measured in 10 in (250 mm) diameter casing.

PERIOD OF RECORD.--May 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 175.20 ft (53.40 m) below land-surface datum, Sept. 10, 1975; lowest measured, 185.70 ft (56.60 m) below land-surface datum, Feb. 20, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1978	183.1	Jan. 23, 1979	185.2	Apr. 30, 1979	184.3	Aug. 27, 1979	185.4
Dec. 13	184.5	Mar. 5	185.5	June 25	185.4		

4734331185600302. Local number, 24/31-16E2.

LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 60 ft (18.3 m).

DATUM.--Altitude of land-surface datum is 1,845 ft (562.4 m).

REMARKS.--Monitored depth interval from 424 to 456 ft (129.2 to 139.0 m), water level measured in piezometer.

PERIOD OF RECORD.--May 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 346.65 ft (105.66 m) below land-surface datum, Jan. 31, 1977; lowest measured, 393.1 ft (119.82 m) below land-surface datum, Feb. 14, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1978	386.5	Jan. 23, 1979	391.0	Apr. 30, 1979	383.4	Aug. 27, 1979	385.1
Dec. 13	389.9	Mar. 5	391.6	June 25	383.1		

LINCOLN COUNTY--Continued

473433118560303. Local number, 24/31-16E3.

LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 60 ft (18.3 m).

DATUM.--Altitude of land-surface datum is 1,845 ft (562.4 m).

REMARKS.--Monitored depth interval from 494 to 556 ft (150.6 to 169.5 m), water level measured in piezometer.

PERIOD OF RECORD.--May 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 345.53 ft (105.318 m) below land-surface datum, Jan. 31, 1977; lowest measured, 393.6 ft (119.97 m) below land-surface datum, Feb. 14, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1978	387.02	Jan. 23, 1979	390.9	Apr. 30, 1979	383.5	Aug. 27, 1979	385.1
Dec. 13	389.8	Mar. 5	391.6	June 25	383.1		

473433118560304. Local number, 24/31-16E4.

LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 60 ft (18.3 m).

DATUM.--Altitude of land-surface datum is 1,845 ft (562.4 m).

REMARKS.--Monitored depth interval 650 to 698 ft (198.1 to 212.8 m), water level measured in piezometer.

PERIOD OF RECORD.--May 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 346.50 ft (105.613 m) below land-surface datum, Jan. 31, 1977; lowest measured, 393.5 ft (119.94 m) below land-surface datum, Feb. 14, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1978	386.3	Jan. 23, 1979	390.7	Apr. 30, 1979	383.4	Aug. 27, 1979	384.9
Dec. 13	389.6	Mar. 5	391.4	June 25	382.9		

473442118162201. Local number, 24/36-16A1.

LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).

DATUM.--Altitude of land-surface datum is 2,372 ft (723.0 m).

REMARKS.--Monitored depth interval from 75 to 116 ft (22.9 to 35.4 m), water level measured in 10 in (250 mm) casing.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.52 ft (8.69 m) below land-surface datum, May 1, 1974; lowest measured, 46.10 ft (14.05 m) below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1978	38.1	Jan. 22, 1979	39.7	Apr. 30, 1979	37.5	Aug. 27, 1979	41.4
Dec. 11	39.0	Mar. 7	36.8	June 25	39.3		

473442118162202. Local number, 24/36-16A2.

LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).

DATUM.--Altitude of land-surface datum is 2,372 ft (723.0 m).

REMARKS.--Monitored depth interval from 123 to 160 ft (37.5 to 48.8 m), water level measured in piezometer.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.58 ft (8.65 m) below land-surface datum, May 1, 1974; lowest measured, 46.22 ft (14.09 m) below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1978	38.1	Jan. 22, 1979	39.7	Apr. 30, 1979	37.6	Aug. 27, 1979	41.4
Dec. 11	39.0	Mar. 7	36.8	June 25	39.3		

GROUND-WATER LEVELS

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LINCOLN COUNTY--Continued

473442118162203. Local number, 24/36-16A3.

LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).

DATUM.--Altitude of land-surface datum is 2,372 ft (723.0 m).

REMARKS.--Monitored depth interval from 208 to 224 ft (63.4 to 68.3 m), water level measured in piezometer.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.24 ft (8.61 m) below land-surface datum, May 1, 1974; lowest measured, 46.25 ft (14.10 m) below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1978	38.13	Jan. 22, 1979	39.6	Apr. 30, 1979	37.6	Aug. 27, 1979	41.4
Dec. 11	39.0	Mar. 7	36.8	June 25	39.3		

473442118162204. Local number, 24/36-16A4.

LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).

DATUM.--Altitude of land-surface datum is 2,372 ft (723.0 m).

REMARKS.--Monitored depth interval from 242 to 261 ft (73.8 to 79.6 m), water level measured in piezometer.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.47 ft (8.37 m) below land-surface datum, May 1, 1974; lowest measured, 46.45 ft (14.16 m) below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1978	38.11	Jan. 22, 1979	39.8	Apr. 30, 1979	37.8	Aug. 27, 1979	41.6
Dec. 11	39.1	Mar. 7	37.2	June 25	39.6		

473442118162205. Local number, 24/36-16A5.

LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).

DATUM.--Altitude of land-surface datum is 2,372 ft (723.0 m).

REMARKS.--Monitored depth interval from 315 to 365 ft (96.0 to 111.3 m), water level measured in piezometer.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.90 ft (8.50 m) below land-surface datum, May 1, 1974; lowest measured, 50.53 ft (15.40 m) below land-surface datum, Sept. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1978	42.4	Jan. 22, 1979	42.0	Apr. 30, 1979	41.4	Aug. 27, 1979	47.4
Dec. 11	41.8	Mar. 7	41.6	June 25	44.8		

473442118162206. Local number, 24/36-16A6.

LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).

DATUM.--Altitude of land-surface datum is 2,372 ft (723.0 m).

REMARKS.--Monitored depth interval from 451 to 491 ft (137.5 to 149.7 m), water level measured in piezometer.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.93 ft (10.65 m) below land-surface datum, Mar. 2, 1976; lowest measured, 66.34 ft (20.22 m) below land-surface datum, Sept. 30, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1978	45.25	Jan. 22, 1979	44.0	Apr. 30, 1979	43.6	Aug. 27, 1979	47.8
Dec. 11	44.6	Mar. 7	43.6	June 25	45.0		

473442118162207. Local number, 24/36-16A7.

LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).

DATUM.--Altitude of land-surface datum is 2,372 ft (723.0 m).

REMARKS.--Monitored depth interval from 590 to 635 ft (179.8 to 193.5 m), water level measured in piezometer.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 162.47 ft (49.52 m) below land-surface datum, Mar. 22, 1972; lowest measured, 211.67 ft (64.52 m) below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1978	196.11	Jan. 22, 1979	187.2	Apr. 30, 1979	189.4	Aug. 27, 1979	208.2
Dec. 11	189.3	Mar. 7	185.8	June 25	209.6		

GROUND-WATER LEVELS

LINCOLN COUNTY--Continued

473442118162208. Local number, 24/36-16A8.
 LOCATION.--Lat 47°34'42" long 118°16'22", Hydrologic Unit 17020013, near Davenport.
 Owner: State of Washington, Department of Ecology.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
 DATUM.--Altitude of land-surface datum is 2,372 ft (723.0 m).
 REMARKS.--Monitored depth interval from 728 to 750 ft (221.9 to 228.6 m), water level measured in piezometer.
 PERIOD OF RECORD.--September 1971 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 162.82 ft (49.63 m) below land-surface datum, Mar. 22, 1972; lowest measured, 214.77 ft (65.46 m) below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1978	195.9	Jan. 22, 1979	187.2	Apr. 30, 1979	189.5	Aug. 27, 1979	208.2
Dec. 11	189.3	Mar. 7	185.9	June 25	209.7		

473547117493001. Local number, 24/39-1R1.
 LOCATION.--Lat 47°35'47" long 117°49'30", Hydrologic Unit 17010307.
 Owner: Vern Puls.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 200 ft (61.0 m), cased to 45 ft (13.7 m).
 DATUM.--Altitude of land-surface datum is 2,420 ft (738 m).
 PERIOD OF RECORD.--November 1966 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.02 ft (4.27 m) below land-surface datum, Mar. 1, 1976; lowest measured, 56.00 ft (17.07 m) below land-surface datum, Sept. 7, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 5, 1978	27.33	Mar. 5, 1979	18.91				

474130118293001. Local number, 25/34-2G1.
 LOCATION.--Lat 47°41'30" long 118°29'30", Hydrologic Unit 17020013.
 Owner: Mervin Hauger.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 320 ft (97.5 m), cased to 60 ft (18.3 m).
 DATUM.--Altitude of land-surface datum is 2,340 ft (713 m).
 PERIOD OF RECORD.--October 1968, March 1972 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 84.76 ft (25.84 m) below land-surface datum, Oct. 22, 1976; lowest measured, 105.54 ft (32.169 m) below land-surface datum, May 18, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1978	101.3	Mar. 5, 1979	100.7				

474512118423001. Local number, 26/33-18G1.
 LOCATION.--Lat 47°45'12" long 118°42'30", Hydrologic Unit 17020013.
 Owner: City of Wilbur.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 450 ft (137.2 m), cased to 50 ft (15.2 m).
 DATUM.--Altitude of land-surface datum is 2,245 ft (684.3 m).
 PERIOD OF RECORD.--November 1966 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.09 ft (14.96 m) below land-surface datum, Apr. 6, 1971; lowest measured, 85.5 ft (26.06 m) below land-surface datum, July 13, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1978	69.5	Mar. 5, 1979	63.04				

OKANOGAN COUNTY

484312119321301. Local number, 37/26-10H1.
 LOCATION.--Lat 48°43'12" long 119°32'13", Hydrologic Unit 17020006.
 Owner: Loy McDaniel.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 10 in (250 mm), depth 95 ft (29.0 m).
 DATUM.--Altitude of land-surface datum is 1,450 ft (442 m).
 PERIOD OF RECORD.--November 1964 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 73.48 ft (22.40 m) below land-surface datum, Apr. 23, 1975; lowest measured, 98.8 ft (30.11 m) below land-surface datum, Jan. 11, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1978	80.43	Jan. 10, 1979	79.28	Apr. 26, 1979	79.05	Aug. 14, 1979	82.69
Nov. 29	79.60	Feb. 20	79.00	June 22	81.92		

GROUND-WATER LEVELS

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OKANOGAN COUNTY--Continued

484033119310302. Local number, 37/26-26J1.

LOCATION.--Lat 48°40'33", long 119°31'03", Hydrologic Unit 17020006.

Owner: Plateau Orchards, Inc.

AQUIFER.--Glacial gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 10 in (250 mm), depth 90 ft (27.4 m), cased to 90 ft (27.4 m).

DATUM.--Land-surface datum is 1,431.84 ft (436.425 m) National Geodetic Vertical Datum of 1929.

PERIOD OF RECORD.--July 1964 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.38 ft (16.58 m) below land-surface datum, Apr. 23, 1975; lowest dry, water level not measureable, Aug. 25, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1978	57.59	Jan. 10, 1979	56.80	Apr. 26 1979	56.65	Aug. 14, 1979	61.73
Nov. 29	56.85	Feb. 20	56.63	June 22	58.94		

SPOKANE COUNTY

471547117402301. Local number, 21/41-31R1.

LOCATION.--Lat 47°15'47", long 117°40'23", Hydrologic Unit 17060109.

Owner: Osborn Beisby.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled stock-supply artesian well, diameter 10 in (250 mm), depth 120 ft (36.6 m).

DATUM.--Altitude of land-surface datum is 2,070 ft (631 m).

PERIOD OF RECORD.--February 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.11 ft (0.338 m) above land-surface datum, Mar. 12, 1979; lowest measured, 16.36 ft (4.99 m) below land-surface datum, Oct. 24, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1978	3.14	Mar. 12, 1979	+1.11				

472540117224501. Local number, 22/43-4F1.

LOCATION.--Lat 47°25'40", long 117°22'45", Hydrologic Unit 17010306 at Spangle.

Owner: Town of Spangle.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled public-supply water-table well, depth 150 ft (45.7 m).

DATUM.--Altitude of land-surface datum is 2,440 ft (744 m).

PERIOD OF RECORD.--February 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.83 ft (7.26 m) below land-surface datum, Apr. 24, 1969; lowest measured, 40.24 ft (12.265 m) below land-surface datum, Sept. 9, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1978	32.25	Mar. 12, 1979	28.7				

472804117403401. Local number, 23/41-19R1.

LOCATION.--Lat 47°28'04", long 117°40'34", Hydrologic Unit 17060108.

Owner: P. M. Steele.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 516 ft (157.3 m), cased to 24 ft (7.3 m).

DATUM.--Altitude of land-surface datum is 2,365 ft (720.9 m).

PERIOD OF RECORD.--June 1956, February 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.0 ft (16.46 m) below land-surface datum, June 24, 1956; lowest measured, 110.8 ft (33.77 m) below land-surface datum, Oct. 13, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 12, 1979	98.8						

473607117322801. Local number, 24/42-6J1.

LOCATION.--Lat 47°36'07", long 117°32'28", Hydrologic Unit 17010306.

Owner: Robert Welsh.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 115 ft (35.1 m), cased to 60 ft (18.3 m).

DATUM.--Altitude of land-surface datum is 2,395 ft (730.0 m).

PERIOD OF RECORD.--October 1963 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 35.01 ft (10.67 m) below land-surface datum, Mar. 24, 1975; lowest measured, 42.65 ft (13.00 m) below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 25, 1978	38.88	Mar. 13, 1979	35.98				

* Water levels above land surface.

GROUND-WATER LEVELS

SPOKANE COUNTY--Continued

475240117261901. Local number, 24/42-25G1.

LOCATION.--Lat 47°32'40", long 117°26'19", Hydrologic Unit 17010306.

Owner: Henry F. Mindrup.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 135 ft (41.1 m), cased to 25 ft (7.6 m).

DATUM.--Altitude of land-surface datum about 2,320 ft (707 m).

PERIOD OF RECORD.--February 1964 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.29 ft (5.58 m) below land-surface datum, May 6, 1969; lowest measured, 52.39 ft (15.97 m) below land-surface datum, Sept. 19, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 25, 1978	32.00	Mar. 12, 1979	22.97				

473849117275401. Local number, 25/42-14L01.

LOCATION.--Lat 47°39'40", long 117°27'54", Hydrologic Unit 17010307.

Owner: Riverside Memorial Park.

AQUIFER.--Glacial gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 72 in (1,800 mm), depth 110 ft (33.5 m), lined with concrete to 82 ft (25.0 m), perforated 82 to 100 ft (25.0 to 30.5 m).

DATUM.--Altitude of land-surface datum is 1,787 ft (544.7 m).

REMARKS.--Water levels used in monthly Water Resources Review.

PERIOD OF RECORD.--December 1941 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 81.73 ft (24.91 m) below land-surface datum, June 7, 1948; lowest measured, 101.96 ft (31.08 m) below land-surface datum, Sept. 24, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 23, 1978	97.06	Jan. 25, 1979	98.15	Apr. 25, 1979	92.68	July 26, 1979	96.83A
Nov. 22	97.46	Feb. 21	97.41	May 25	89.50A	Aug. 24	98.70A
Dec. 22	98.12	Mar. 22	94.17	June 22	92.47A	Sept. 25	97.84

473924117130001. Local number, 25/44-23D1.

LOCATION.--Lat 47°39'24", long 117°13'00", Hydrologic Unit 17010305, at U.S. Highway 10 and Evergreen Road.

Owner: Mr. Boisevert.

AQUIFER.--Glacial gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 48 to 18 in (1,200 to 450 mm), depth 97 ft (29.6 m), lined with brick to 97 ft (29.6 m).

DATUM.--Land-surface datum is 2,016.74 ft (614.702 m) National Geodetic Vertical Datum of 1929.

PERIOD OF RECORD.--April 1931 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 77.85 ft (23.73 m) below land-surface datum, Apr. 8, 1950; lowest measured, 95.40 ft (29.08 m) below land-surface datum, Dec. 8, 1931.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 25, 1978	92.22	Mar. 7, 1979	90.8				

474011117072901. Local number, 25/45-16C1.

LOCATION.--Lat 47°40'11", long 117°07'29", Hydrologic Unit 17010305.

Owner: Inland Empire Paper Company.

AQUIFER.--Glacial sand and gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Dug unused irrigation water-table well, diameter 96 in (2,400 mm), depth 129 ft (39.3 m), lined with gunite cement to 129 ft (39.3 m).

DATUM.--Land-surface datum is 2,060.4 ft (628.01 m) National Geodetic Vertical Datum of 1929.

PERIOD OF RECORD.--April 1929 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 84.56 ft (25.77 m) below land-surface datum, June 17, 1953; lowest measured, 114.53 ft (34.91 m) below land-surface datum, Dec. 8, 1931.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 25, 1978	108.60	Jan. 10, 1979	109.70	May 1, 1979	103.70	Aug. 30, 1979	110.50
Nov. 15	109.0	Mar. 7	107.80	June 26	104.68		

474436117245501. Local number, 26/43-19A1.

LOCATION.--Lat 47°44'36", long 117°24'55", Hydrologic Unit 17010308.

Owner: Whitworth Water District No. 2.

AQUIFER.--Glacial gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Dug public-supply and irrigation water-table well, diameter 78 in (1,950 mm), depth 162 ft (49.4 m), lined with concrete to 162 ft (49.4 m).

DATUM.--Land-surface datum is 1,935.91 ft (590.065 m) National Geodetic Vertical Datum of 1929.

PERIOD OF RECORD.--November 1930 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 133.72 ft (40.758 m) below land-surface datum Mar. 15, 1934; lowest measured, 141.05 ft (42.99 m) below land-surface datum, Oct. 2, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 13, 1978	136.3	Mar. 8, 1979	138.0	June 27, 1979	138.09A	Sept. 5, 1979	140.43
Jan. 9, 1979	137.91	May 3	137.12				

A Well being pumped.

GROUND-WATER LEVELS

285

SPOKANE COUNTY--Continued

474224117075901. Local number, 26/45-32J2.

LOCATION.--Lat 47°42'24", long 117°07'59", Hydrologic Unit 17010305, Otis Orchards.

Owner: R. L. McVicker.

AQUIFER.--Glacial sand and gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 155 ft (47.2 m), cased to 155 ft (47.2 m), perforated from 132 to 154 ft (40.2 to 47.0 m).

DATUM.--Altitude of land-surface datum is 2,080 ft (634 m).

PERIOD OF RECORD.--November 1958 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 116.14 ft (35.40 m) below land-surface datum, June 15, 1961; lowest measured, 135.26 ft (41.23 m) below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 25, 1978	133.0	Jan. 10, 1979	133.4B	May 1, 1979	128.7B	Sept. 5, 1979	133.73
Nov. 14	133.2B	Mar. 7	132.2	June 26	130.6A		

STEVENS COUNTY

475525117465301. Local number, 28/40-17J1.

LOCATION.--Lat 47°55'25", long 117°46'53", Hydrologic Unit 17010307, at Ford.

Owner: R. J. Seagle.

AQUIFER.--Alluvial sand and gravel of Holocene Age.

WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 36 in (900 mm), depth 20 ft (6.1 m), lined with concrete to 20 ft (6.1 m).

DATUM.--Altitude of land-surface datum is 1,790 ft (546 m).

PERIOD OF RECORD.--October 1954 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.82 ft (0.250 m) below land-surface datum, Apr. 7, 1969; lowest measured, 19.05 ft (5.81 m) below land-surface datum, Dec. 13, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 8, 1978	17.17	May 9, 1979	7.94	June 6, 1979	9.81	July 23, 1979	15.22
Mar. 23	8.58						

WALLA WALLA COUNTY

460020118225701. Local number, 6/35-12N1.

LOCATION.--Lat 46°00'20", long 118°22'57", Hydrologic Unit 17070102.

Owner: Wynn Estes.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation artesian well, diameter 10 to 8 in (250 to 200 mm), depth 590 ft (179.8 m), cased to 495 ft (150.9 m).

DATUM.--Altitude of land-surface datum is 768 ft (234.1 m).

PERIOD OF RECORD.--April 1955 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 57.4 ft (17.5 m) above land-surface datum, Mar. 21, 1978; lowest measured, 96.5 ft (29.47 m) below land-surface datum, Oct. 25, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 25, 1978	96.7	Mar. 16, 1979	59.6				

460014118281801. Local number, 6/35-18A1.

LOCATION.--Lat 46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 12 to 8 in (300 to 200 mm), depth 1,308 ft (398.7 m), 12 in (300 mm) diameter casing from 0 to 273 ft (0 to 83.2 m), 10 in (250 mm) diameter casing from 250 to 680 ft (76.2 to 207.3 m), 8 in (200 mm) diameter casing from 670 to 730 ft (204.2 to 222.5 m), perforations from 90 to 230 ft (27.4 to 70.1 m) and from 710 to 730 ft (216.4 to 222.5 m).

DATUM.--Altitude of land-surface datum is 670 ft (204 m).

REMARKS.--Monitored depth interval from 90 to 230 ft (27.4 to 70.1 m), water level measured in 12 in (300 mm) diameter casing.

PERIOD OF RECORD.--September 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.1 ft (5.82 m) below land-surface datum, Mar. 16, 1979; lowest measured, 45.70 ft (13.93 m) below land-surface datum, Jan. 27, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 25, 1978	27.6	Dec. 20, 1978	25.6	Mar. 16, 1979	19.1	Apr. 24, 1979	25.6

A Well being pumped.

B Well recently pumped.

WALLA WALLA COUNTY--Continued

460014118281802. Local number, 6/35-18A2.

LOCATION.--Lat 46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in (300 to 200 mm), depth 1,308 ft (398.7 m), 12 in (300 mm) diameter casing from 0 to 273 ft (0 to 83.2 m), 10 in (250 mm) diameter casing from 250 to 680 ft (76.2 to 207.3 m), 8 in (200 mm) diameter casing from 670 to 730 ft (204.2 to 222.5 m), perforations from 90 to 230 ft (27.4 to 70.1 m) and from 710 to 730 ft (216.4 to 222.5 m).

DATUM.--Altitude of land-surface datum is 670 ft (204 m).

REMARKS.--Monitored depth interval from 710 to 730 ft (216.4 to 222.5 m), water level measured in piezometer.

PERIOD OF RECORD.--September 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 144.20 ft (43.95 m) below land-surface datum,

Apr. 1, 1974; lowest measured, 200.8 ft (61.20 m) below land-surface datum, Oct. 19, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 25, 1978	191.4	Dec. 20, 1978	154.7	Mar. 16, 1979	151.9	Apr. 24, 1979	163.8

460014118281803. Local number, 6/35-18A3.

LOCATION.--Lat 46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in (300 to 200 mm), depth 1,308 ft (398.7 m), 12 in (300 mm) diameter casing from 0 to 273 ft (0 to 83.2 m), 10 in (250 mm) diameter casing from 250 to 680 ft (76.2 to 207.3 m), 8 in (200 mm) diameter casing from 670 to 730 ft (204.2 to 222.5 m), perforations from 90 to 230 ft (27.4 to 70.1 m) and from 710 to 730 ft (216.4 to 222.5 m).

DATUM.--Altitude of land-surface datum is 670 ft (204 m).

REMARKS.--Monitored depth interval from 740 to 1,204 ft (225.6 to 337.0 m), water level measured in piezometer.

PERIOD OF RECORD.--September 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 145.10 ft (44.23 m) below land-surface datum, Apr.

1, 1974; lowest measured, 201.0 ft (61.26 m) below land-surface datum, Oct. 19, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 25, 1978	191.5	Dec. 20, 1978	155.0	Mar. 16, 1979	152.8	Apr. 24, 1979	164.4

460014118281804. Local number, 6/35-18A4.

LOCATION.--Lat 46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in (300 to 200 mm), depth 1,308 ft (398.7 m), 12 in (300 mm) diameter casing from 0 to 273 ft (0 to 83.2 m), 10 in (250 mm) diameter casing from 250 to 680 ft (76.2 to 207.3 m), 8 in (200 mm) diameter casing from 670 to 730 ft (204.2 to 222.5 m), perforations from 90 to 230 ft (27.4 to 70.1 m) and from 710 to 730 ft (216.4 to 222.5 m).

DATUM.--Altitude of land-surface datum is 670 ft (204 m).

REMARKS.--Monitored depth interval from 1,216 to 1,308 ft (370.6 to 398.7 m), water level measure in piezometer.

PERIOD OF RECORD.--September 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 145.60 ft (44.38 m) below land-surface datum,

Apr. 1, 1974; lowest measured, 201.9 ft (61.54 m) below land-surface datum, Oct. 19, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 25, 1978	192.5	Dec. 20, 1978	155.4	Mar. 16, 1979	153.1	Apr. 24, 1979	164.9

460341118350701. Local number, 7/35-29C1.

LOCATION.--Lat 46°03'41", long 118°35'07", Hydrologic Unit 17070102.

Owner: Lowden A. Johnson.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 to 6 in (300 to 150 mm), depth 1,201 ft (366.1 m), cased to 610 ft (185.9 m).

DATUM.--Altitude of land-surface datum is 505 ft (153.9 m).

PERIOD OF RECORD.--October 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 68 ft (20.7 m) below land-surface datum, Mar. 3, 1966; lowest measured, 121.7 ft (37.09 m) below land-surface datum, Oct. 25, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 25, 1978	121.7	Mar. 16, 1979	101.6				

460238118225301. Local number, 7/35-36F1.

LOCATION.--Lat 46°02'38", long 118°22'53", Hydrologic Unit 17070102, at College Place.

Owner: College Place Water Company.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled public-supply artesian well, diameter 8 in (200 mm), depth 810 ft (246.9 m).

DATUM.--Altitude of land-surface datum is 796 ft (242.6 m).

PERIOD OF RECORD.--March 1948, April 1955 to February 1957, October 1959 to October 1962, March 1964 to November

1973, October 1970 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.0 ft (11.28 m) above land-surface datum, Mar. 18, 1948; lowest measured, 146.2 ft (44.56 m) below land-surface datum, Oct. 29, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 25, 1978	143.0	Mar. 16, 1979	96.0				

GROUND-WATER LEVELS

287

WALLA WALLA COUNTY--Continued

460457118200901. Local number, 7/36-17L1.

LOCATION.--Lat 46°04'57", long 118°20'09", Hydrologic Unit 17070102, Veteran's Memorial Park.

Owner: City of Walla Walla.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 to 8 in (300 to 200 mm), depth 2,728 ft (831.5 m), cased to 2,155 ft (656.8 m).

DATUM.--Altitude of land-surface datum is 990 ft (302 m).

PERIOD OF RECORD.--April 1959 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.51 ft (15.09 m) below land-surface datum, May 10, 1960; lowest measured, 166.70 ft (50.81 m) below land-surface datum, Aug. 2, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 25, 1978	153.4	Mar. 16, 1979	132.7				

460335118172301. Local number, 7/36-27G1.

LOCATION.--Lat 46°03'55", long 118°17'23", Hydrologic Unit 17070102.

Owner: Rudolph Depping.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation artesian well, diameter 10 to 8 in (250 to mm), depth 450 ft (137.2 m), cased to 357 ft (108.8 m).

DATUM.--Altitude of land surface datum is 1,080 ft (329 m).

PERIOD OF RECORD.--April 1955 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.0 ft (0.61 m) above land-surface datum, Apr. 19, 1956; lowest measured, 61 ft (18.6 m) below land-surface datum, July 14, 1970.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 26, 1978	49.9	Mar. 16, 1979	45.3				

WHITMAN COUNTY

463623117054501. Local number, 13/45-13L2.

LOCATION.--Lat 46°36'23", long 117°05'45", Hydrologic Unit 17060108.

Owner: Alfred Druffel.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 190 ft (57.9 m), lined with steel to 60 ft (18.3 m).

DATUM.--Altitude of land-surface datum is 2,680 ft (817 m).

PERIOD OF RECORD.--May 1963 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 71.95 ft (21.93 m) below land-surface datum, Mar. 24, 1964; lowest measured, 78.70 ft (23.99 m) below land-surface datum, Oct. 10, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1978	76.3	Mar. 1, 1979	75.8				

464343117131701. Local number 14/44-1E1.

LOCATION.--Lat 46°43'43", long 117°13'17", Hydrologic Unit 17060108, near Pullman.

Owner: R. Harlow.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 375 ft (114.3 m).

DATUM.--Altitude of land-surface datum is 2,565 ft (781.8 m).

PERIOD OF RECORD.--August 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 136.8 ft (41.70 m) below land-surface datum, July 31, 1979; lowest measured, 271.00 ft (82.60 m) below land-surface datum, Aug. 21, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1978	141.1	Jan. 9, 1979	160.8	Apr. 11, 1979	144.8	July 31, 1979	136.8
Nov. 21	145.3	Mar. 1	141.4	June 5	146.7		

464349117101101. Local number, 14/45-5F1.

LOCATION.--Lat 46°43'49", long 117°10'11", Hydrologic Unit 17060108, Pullman.

Owner: Washington State University, well No. 1.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 4 in (100 mm), depth 145 ft (44.2 m), cased.

DATUM.--Land-surface datum is 2,364.4 ft (720.67 m) National Geodetic Vertical Datum of 1929.

PERIOD OF RECORD.--March 1935 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.52 ft (5.95 m) below land-surface datum, Mar. 19, 1935; lowest measured, 85.7 ft (26.12 m) below land-surface datum, July 31, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1978	84.1	Jan. 9, 1979	84.0	Apr. 11, 1979	83.6	July 31, 1979	85.7
Nov. 21	83.6	Mar. 1	83.9	June 5	84.3		

GROUND-WATER LEVELS

WHITMAN COUNTY--Continued

464408117103202. Local number, 15/45-32N2.
 LOCATION.--Lat 46°44'08", long 117°10'32", Hydrologic Unit 17060108, Richie and Grand Street, Pullman.
 Owner: City of Pullman well No. 4.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled public-supply artesian well, diameter 16 to 12 in (400 to 300 mm), depth 954 ft (290.8 m), cased to 399 ft (121.6 m).
 DATUM.--Altitude of land-surface datum is 2,356 ft (718.1 m).
 PERIOD OF RECORD.--April 1959 to September 1979 (discontinued).
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.98 ft (7.92 m) below land-surface datum, May 24, 1960; lowest measured, 65.6 ft (20.0 m) below land-surface datum, July 24 and Oct. 19, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1978	65.6	Nov. 21, 1978	65.5	Jan. 16, 1979	65.4A	Apr. 11, 1979	65.2

464408117103203. Local number, 15/45-32N3.
 LOCATION.--Lat 46°44'08", long 117°10'32", Hydrologic Unit 17060108, at Pullman.
 Owner: City of Pullman.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (500 mm), depth 238 ft (72.5 m), cased to 238 ft (72.5 m).
 DATUM.--Altitude of land-surface datum is 2,356 ft (718.1 m).
 PERIOD OF RECORD.--December 1957 to September 1979 (discontinued).
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.32 ft (7.42 m) below land-surface datum, Dec. 16, 1957; lowest measured, 66.4 ft (20.24 m) below land-surface datum, July 24, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1978	65.8	Jan. 16, 1979	65.0A	Mar. 1, 1979	64.5A	Apr. 11, 1979	65.4
Nov. 21	65.6						

465800117343001. Local number, 17/42-18M1.
 LOCATION.--Lat 46°58'00", long 117°34'30", Hydrologic Unit 17060108, near Thera.
 Owner: Phil Smick.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 204 ft (62.2 m).
 DATUM.--Altitude of land-surface datum is 2,035 ft (620.3 m).
 PERIOD OF RECORD.--December 1954 to August 1956, April 1974 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 144.65 ft (44.09 m) below land-surface datum, Apr. 6, 1972; lowest measured, 165.2 ft (50.35 m) below land-surface datum, July 3, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1978	150.6	Mar. 12, 1979	146.6				

470452117414401. Local number, 18/41-6L1.
 LOCATION.--Lat 47°04'52", long 117°41'44", Hydrologic Unit 17060109.
 Owner: Lyle Harwood.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 575 ft (175.3 m).
 DATUM.--Altitude of land-surface datum is 1,940 ft (591 m).
 PERIOD OF RECORD.--August 1967 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 46.9 ft (14.30 m) below land-surface datum, Mar. 14, 1968; lowest measured, 88.1 ft (26.85 m) below land-surface datum, July 10, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1978	70.4						

470718117232801. Local number, 19/43-28B1.
 LOCATION.--Lat 47°07'18", long 117°25'28", Hydrologic Unit 17060109, near Thornton.
 Owner: McGregor Co.
 AQUIFER.--Basalt of Miocene to Pliocene Age.
 WELL CHARACTERISTICS.--Drilled industrial artesian well, diameter 8 in (200 mm), depth 84 ft (25.6 m).
 DATUM.--Altitude of land-surface datum is 2,290 ft (698 m).
 PERIOD OF RECORD.--August 1967 to current year.
 EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.14 ft (3.70 m) above land-surface datum, Mar. 3, 1976; lowest measured, 2.0 ft (0.61 m) above land-surface datum, Oct. 29, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1978	+9.12	Mar. 12, 1979	+9.17				

A Well being pumped.
 * Water levels above land surface.

GROUND-WATER LEVELS

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WHITMAN COUNTY--Continued

470707117040502. Local number, 19/45-25G2.

LOCATION.--Lat 47°07'07", long 117°04'05", Hydrologic Unit 17060109.

Owner: Bert Lehn.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm), depth 134 ft (40.8 m).

DATUM.--Altitude of land-surface datum is 2,600 ft (792 m).

PERIOD OF RECORD.--December 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.49 ft (5.03 m) below land-surface datum, Feb. 27, 1968; lowest measured, 42.83 ft (13.06 m) below land-surface datum, Dec. 22, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1978	26.5	Mar. 12, 1979	23.6				

471413117510801. Local number, 20/39-12N1.

LOCATION.--Lat 47°14'13", long 117°51'08", Hydrologic Unit 17060109, near Lamont.

Owner: Earl Swift.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 10 in (250 mm), depth 284 ft (86.6 m).

DATUM.--Altitude of land-surface datum is 2,110 ft (643 m).

PERIOD OF RECORD.--August 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 159.7 ft (48.68 m) below land-surface datum, Nov. 5, 1975; lowest measured, 178.86 ft (54.52 m) below land-surface datum, Oct. 12, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1978	168.3	Mar. 7, 1979	165.61				

YAKIMA COUNTY

461934120003701. Local number, 10/22-25F1.

LOCATION.--Lat 46°19'34", long 120°00'37", Hydrologic Unit 17030003, at Sunnyside.

Owner: City of Sunnyside.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled public-supply water-level well, diameter 16 in (400 mm), depth 1,570 ft (478.5 m), cased to 1,283 ft (391.1 m).

DATUM.--Altitude of land-surface datum is 745 ft (227.1 m).

PERIOD OF RECORD.--May 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.7 ft (6.00 m) below land-surface datum, Jan. 2, 1974; lowest measured, 178.86 ft (54.52 m) below land-surface datum, July 30, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 1, 1978	65.4	Dec. 20, 1978	62.6	Feb. 27, 1979	60.0	Apr. 30, 1979	62.0

463200120462002. Local number, 12/16-13D2.

LOCATION.--46°52'00", long 120°46'20", Hydrologic Unit 17030003.

Owner: Herke Brothers.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled test water-table well, diameter 8 in (200 mm), depth 130 ft (39.6 m).

DATUM.--Altitude of land-surface datum about 1,800 ft (549 m).

PERIOD OF RECORD.--March 1951 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 50.37 ft (15.35 m) below land-surface datum, June 15, 1951; lowest measured, 124.7 ft (38.01 m) below land-surface datum, Sept. 9, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 2, 1978	104.3	Mar. 8, 1979	93.5	June 7, 1979	113.3		

463210120523001. Local number, 12/16-18C1.

LOCATION.--Lat 46°52'10", long 120°52'30", Hydrologic Unit 17030003, near Tampico.

Owner: Mandor-Hazen.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 14 in (350 mm), depth 287 ft (87.5 m), cased to 80 ft (24.4 m).

DATUM.--Altitude of land-surface datum is 2,160 ft (658 m).

PERIOD OF RECORD.--May 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.55 ft (1.39 m) below land-surface datum, July 21, 1972; lowest measured, 51.2 ft (15.61 m) below land-surface datum, Aug. 26, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 2, 1978	14.0	Mar. 8, 1979	12.2				

GROUND-WATER LEVELS

YAKIMA COUNTY--Continued

463226120412901. Local number, 12/17-9J3.

LOCATION.--Lat 46°32'26", long 120°41'29", Hydrologic Unit 17030003.

Owner: Walter McInnes.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unlined water-table well, diameter 4 in (100 mm), depth 479 ft (146.0 m), cased to 430 ft (131.1 m).

DATUM.--Altitude of land-surface datum is 1,460 ft (445 m).

PERIOD OF RECORD.--January 1953 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 66.80 ft (20.36 m) below land-surface datum,

July 20, 1953; lowest measured, 193.1 ft (58.86 m) below land-surface, Aug. 8, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 2, 1978	166.3	Mar. 8, 1979	92.7	June 7, 1979	130.8	Aug. 8, 1979	193.1
Dec. 7	152.6						

463212120432301. Local number, 12/17-17C1.

LOCATION.--Lat 46°32'12", long 120°43'23", Hydrologic Unit 17030003.

Owner: R. C. Cornelius.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation artesian well, diameter 8 in (200 mm), depth 243 ft (74.1 m), cased to 166 ft (50.6 m).

DATUM.--Altitude of land-surface datum is 1,562 ft (476.1 m).

PERIOD OF RECORD.--June 1959 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.60 ft (0.792 m) above land-surface datum, May 22, 1962; lowest measured, 95.4 ft (29.08 m) below land-surface datum, Sept. 14, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 2, 1978	96.8C	Mar. 8, 1979	41.5				

463022120095801. Local number, 12/21-27A1.

LOCATION.--Lat 46°30'22", long 120°09'58", Hydrologic Unit 17030003, Moxee Plant Quarantine Station.

Owner: Washington Department of Agriculture.

AQUIFER.--Sand of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 to 10 in (300 to 250 mm), depth 295 ft (89.9 m), cased to 295 ft (89.9 m), perforated 193 to 295 ft (58.8 to 89.9 m).

DATUM.--Altitude of land-surface datum is 1,555 ft (474.0 m).

PERIOD OF RECORD.--May 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 200 ft (61.0 m) below land-surface datum, Jan. 15, 1962; lowest measured, 236.3 ft (72.02 m) below land-surface datum, May 1, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 2, 1978	240.9A	Mar. 9, 1979	231.6				

464023120423401. Local number, 14/17-28L1.

LOCATION.--Lat 46°40'23", long 120°42'54", Hydrologic Unit 17030002, at Cowiche.

Owner: Robert Tate.

AQUIFER.--Glacial gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 82 ft (25.0 m).

DATUM.--Altitude of land-surface datum is 1,738 ft (529.7 m).

PERIOD OF RECORD.--May 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.1 ft (4.91 m) below land-surface datum, Oct. 24, 1974; lowest measured, 23.9 ft (7.28 m) below land-surface datum, July 1, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 3, 1978	17.4B	Jan. 30, 1979	19.4B	June 5, 1979	21.5B	Aug. 8, 1979	22.6B
Dec. 6	18.5B	Mar. 8	19.7				

464445120360001. Local number, 15/18-32K3.

LOCATION.--Lat 46°44'45", long 120°36'00", Hydrologic Unit 17030001.

Owner: Wenas Valley Grange.

AQUIFER.--Glacial gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled institutional water-table well, diameter 8 to 6 in (200 to 150 mm), depth 85 ft (25.9 m), cased.

DATUM.--Altitude of land-surface datum is 1,460 ft (445 m).

PERIOD OF RECORD.--June 1954 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.73 ft (11.50 m) below land-surface datum, Oct. 23, 1957; lowest measured, 74.14 ft (22.60 m) below land-surface datum, Nov. 6, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 3, 1978	49.4	Mar. 7, 1979	49.9	June 5, 1979	49.4	Aug. 7, 1979	51.8
Dec. 6	50.3						

B Well recently pumped.

C Nearby well pumping.

QUALITY OF GROUND WATER

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BENTON COUNTY

LOCAL IDENT- I- FIER	STATION NUMBER	LAT- I- TUDE	LONG- I- TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH OF WELL- TOTAL (FEET)	DEPTH TO BOT- TOM OF SAMPLE INTER- VAL (FT)	DEPTH TO TOP OF SAMPLE INTER- VAL (FT)
11/27E-17801	46264119273101	46 26 41	119 27 31	01	79-04-16	0950	161	160	140
11/27E-26C01	462500119240101	46 25 00	119 24 01	01	79-04-20	0905	143	132	117
12/26E-08P01	463200119304701	46 32 11	119 35 17	01	79-04-19	1150	322	322	280
12/26E-09L01	463225119340901	46 32 25	119 34 09	01	79-04-17	1345	354	354	330
12/26E-13H01	463146119293901	46 31 46	119 29 39	01	79-04-17	0920	126	119	109
12/26E-15C01	463155119325201	46 31 55	119 32 52	01	79-04-20	1145	440	409	315
12/26E-15J01	463133119321501	46 31 33	119 32 15	01	79-04-20	1025	320	320	300
12/26E-18G01	463150119362001	46 31 44	119 36 23	01	79-04-19	1300	280	280	207
12/27E-15G01	463138119244801	46 31 38	119 24 48	01	79-04-16	1330	171	169	111
12/27E-18C01	462700119285601	46 32 00	119 28 55	01	79-04-16	1440	167	167	127
12/27E-31Q01	462844119284301	46 28 44	119 28 43	01	79-04-19	1420	160	160	110
12/28E-19F01	463049119213201	46 30 49	119 21 32	01	79-04-16	1150	80	77	67
13/25E-03Q01	463020119402401	46 30 20	119 40 24	01	79-04-18	1420	52	48	33
13/26E-31R01	463345119360001	46 33 51	119 36 09	01	79-04-17	1135	320	320	274
13/26E-34C01	463432119325001	46 34 32	119 32 50	01	79-04-17	1245	149	139	124
14/26E-23D01	464135119320001	46 41 35	119 32 00	01	79-04-18	1050	91	90	35
14/26E-27H01	464041119324201	46 40 41	119 32 42	01	79-04-18	1155	83	83	59
14/26E-32L03	463922119353501	46 39 17	119 35 30	01	79-04-18	1315	51	46	24
14/27E-18H02	464211119283501	46 42 11	119 28 35	01	79-04-18	0925	55	55	34
14/27E-33G01	463935119262501	46 39 28	119 26 14	01	79-04-17	1450	67	63	35

LOCAL IDENT- I- FIER	DATE OF SAMPLE	ELEV. OF LAND SURFACE DATE (FT. NGVD)	PUMP ON FLOW PERIOD PRIOR TO SAM- PLING (MIN)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	P: (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM CORALY UNITS)	TUR- BID- ITY (NTU)	HARD- NESS (MG/L AS CACO3)	HARD- NESS- NONCAR- BONATE (MG/L AS CACO3)
11/27E-17801	79-04-16	537.00	30	325	7.8	19.2	2	44	140	1
11/27E-26C01	79-04-20	504.00	25	412	8.0	18.2	40	.60	130	0
12/26E-08P01	79-04-19	726.00	40	404	7.9	21.2	0	.90	150	0
12/26E-09L01	79-04-17	748.00	20	395	7.8	22.2	0	.90	150	6
12/26E-13H01	79-04-17	516.00	20	410	7.9	20.0	0	.80	140	22
12/26E-15C01	79-04-20	717.00	45	428	7.8	21.5	0	1.6	150	0
12/26E-15J01	79-04-20	708.00	25	382	8.0	21.1	0	1.6	140	0
12/26E-18G01	79-04-19	667.00	30	340	7.8	20.8	2	1.60	120	0
12/27E-15G01	79-04-16	518.00	30	506	8.0	18.7	0	.40	170	54
12/27E-18C01	79-04-16	537.00	20	405	7.9	21.5	0	1.3	130	10
12/27E-31Q01	79-04-19	515.00	25	310	7.9	19.1	0	3.6	110	0
12/28E-19F01	79-04-16	466.00	30	462	7.9	16.6	0	.40	170	46
13/25E-03Q01	79-04-18	437.00	20	280	7.5	21.2	0	.40	110	15
13/26E-31R01	79-04-17	725.00	20	420	8.0	20.0	1	3.4	170	74
13/26E-34C01	79-04-17	530.00	20	600	9.2	18.2	0	.90	180	110
14/26E-23D01	79-04-18	470.00	20	335	7.7	24.2	3	4.2	130	42
14/26E-27H01	79-04-18	459.00	20	265	8.0	16.9	0	.30	100	6
14/26E-32L03	79-04-18	422.00	20	235	8.1	22.2	0	.70	100	31
14/27E-18H02	79-04-18	410.00	40	3500	7.9	22.4	15	3.9	160	0
14/27E-33G01	79-04-17	407.00	20	228	7.8	20.6	0	.80	100	5

LOCAL IDENT- I- FIER	DATE OF SAMPLE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	SODIUM+ POTAS- SIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE AS HCO3)	CAR- BONATE (MG/L AS CO3)
11/27E-17R01	79-04-16	38	11	13	16	.5	17	4.4	170	0
11/27E-26C01	79-04-20	36	8.9	36	36	1.4	44	7.8	210	0
12/26E-08P01	79-04-19	40	11	23	25	.8	29	5.6	180	0
12/26E-09L01	79-04-17	40	13	21	42	.7	27	5.6	180	0
12/26E-13H01	79-04-17	35	12	31	32	1.2	37	6.2	140	0
12/26E-15C01	79-04-20	41	12	25	26	.9	31	5.7	220	0
12/26E-15J01	79-04-20	38	12	21	23	.8	26	4.9	200	0
12/26E-18G01	79-04-19	32	9.8	19	25	.8	23	4.3	150	0
12/27E-15G01	79-04-16	46	13	24	26	1.0	36	6.6	140	0
12/27E-18C01	79-04-16	32	11	31	34	1.2	38	6.8	140	0
12/27E-31Q01	79-04-19	30	9.4	17	23	.7	23	5.7	180	0
12/28E-19F01	79-04-16	48	12	21	20	.7	27	6.4	150	0
13/25E-03Q01	79-04-18	33	7.5	9.3	15	.4	14	4.5	120	0
13/26E-31R01	79-04-17	41	17	14	15	.5	18	3.8	120	0
13/26E-34C01	79-04-17	58	7.7	45	34	1.5	58	13	67	10
14/26E-23D01	79-04-18	39	8.4	12	16	.5	16	4.1	110	0
14/26E-27H01	79-04-18	26	9.6	16	24	.7	20	3.5	120	0
14/26E-32L03	79-04-18	34	4.3	3.4	7	.1	5.3	1.9	87	0
14/27E-18H02	79-04-18	50	7.5	700	90	24	710	10	240	0
14/27E-33G01	79-04-17	34	4.5	4.4	8	.2	7.1	2.7	120	0

QUALITY OF WATER
 BENTON COUNTY--Continued

LOCAL IDENT- IFIER	DATE OF SAMPLE	ALKA- LITY AS CACO3	CARBON DIOXIDE DIS- SOLVED AS CO2	SULFATE SOLVED AS SO4	CHLO- RIDE, DIS- SOLVED AS CL	FLUO- RIDE, DIS- SOLVED AS F	BROWIDE DIS- SOLVED AS BR	IODIDE, DIS- SOLVED AS I	SILICA, DIS- SOLVED AS SiO2	SOLIDS, RESIDUE AT 180 DEG. C DISE- SOLVED (MG/L)
11/27E-17801	79-04-16	139	4.3	34	5.6	.4	.1	.01	36	215
11/27E-26C01	79-04-20	172	3.4	13	22	1.3	.1	.02	39	257
12/26E-08P01	79-04-19	146	3.6	28	14	.4	.1	.01	43	265
12/26E-09L01	79-04-17	146	4.6	32	7.7	.4	.1	.01	47	259
12/26E-13H01	79-04-17	115	2.8	59	16	.6	.1	.01	43	268
12/26E-15C01	79-04-20	180	5.6	32	7.6	.5	.1	.01	46	252
12/26E-15J01	79-04-20	164	3.2	33	6.3	.4	.1	.01	45	255
12/26E-18G01	79-04-19	123	3.8	24	12	.5	.0	.01	45	227
12/27E-15G01	79-04-16	115	2.2	66	15	.4	.0	.01	33	335
12/27E-18C01	79-04-16	115	2.8	50	11	.6	.0	.00	45	272
12/27E-31Q01	79-04-19	146	3.6	21	4.0	.4	.0	.01	48	210
12/28E-19F01	79-04-16	123	3.0	56	13	.3	.1	.01	37	306
13/25E-03Q01	79-04-18	98	6.1	42	3.9	.2	.0	.00	37	186
13/26E-31R01	79-04-17	98	1.9	62	20	.4	.2	.01	43	277
13/26E-34C01	79-04-17	72	.1	170	28	.4	.2	.00	33	405
14/26E-23001	79-04-18	90	3.5	46	16	.2	.1	.00	40	216
14/26E-27801	79-04-18	98	1.9	25	3.8	.4	.0	.00	39	180
14/26E-32L03	79-04-18	71	1.1	42	2.6	.2	.0	.00	14	138
14/27E-18H02	79-04-18	197	4.8	160	8.8	.3	.3	.01	29	2700
14/27E-33G01	79-04-17	98	3.0	14	2.6	.1	.0	.00	26	145

LOCAL IDENT- IFIER	DATE OF SAMPLE	SOLIDS, SUM OF CONSTIT- UENTS, DIS- SOLVED (MG/L)	SOLIDS, SOLVED (TONS PER AC-FT)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	ARSENIC DIS- SOLVED (UG/L AS AS)	CHRO- MIUM, HEXA- VALENT, (UG/L AS CR)
11/27E-17801	79-04-16	<226	<.29	.31	.04	.35	.00	.070	7	0
11/27E-26C01	79-04-20	<268	.35	.89	.02	.91	.01	.040	13	0
12/26E-08P01	79-04-19	<254	.36	5.7	.00	5.7	.01	.040	4	21
12/26E-09L01	79-04-17	<256	.35	3.8	.00	3.8	.01	.030	6	0
12/26E-13H01	79-04-17	<272	.36	5.5	.02	5.5	.01	.020	5	0
12/26E-15C01	79-04-20	<278	.34	2.2	.00	2.2	.00	.030	6	0
12/26E-15J01	79-04-20	<259	.35	1.8	.00	1.8	.00	.030	6	0
12/26E-18G01	79-04-19	<221	.31	4.0	.00	4.0	.00	.380	5	31
12/27E-15G01	79-04-16	278	.46	17	.00	17	.01	.020	7	0
12/27E-18C01	79-04-16	256	.37	7.5	.02	7.5	.09	.030	6	0
12/27E-31Q01	79-04-19	<224	.29	.13	.02	.15	.01	.030	4	0
12/28E-19F01	79-04-16	<268	.42	13	.00	13	.00	.020	8	0
13/25E-03Q01	79-04-18	<197	<.25	.77	.00	.77	.01	.050	5	9
13/26E-31R01	79-04-17	<261	.38	7.7	.00	7.7	.01	.010	4	0
13/26E-34C01	79-04-17	<398	.55	3.6	.04	3.6	.17	.010	13	0
14/26E-23001	79-04-18	<220	.29	3.7	.00	3.7	.00	.030	5	100
14/26E-27801	79-04-18	<182	.24	2.9	.02	2.9	.01	.020	11	120
14/26E-32L03	79-04-18	165	.19	1.2	.00	1.2	.00	.010	3	60
14/27E-18H02	79-04-18	<1080	3.67	380	.04	380	.03	.080	10	1500
14/27E-33G01	79-04-17	<147	.20	.91	.00	.91	.06	.020	3	0

LOCAL IDENT- IFIER	DATE OF SAMPLE	IRON, FERROUS DIS- SOLVED (UG/L AS FE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	GROSS ALPHA, DIS- SOLVED (U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L CS-137)	GROSS BETA, DIS- SOLVED (PCI/L YT-90)	CESIUM 137 DIS- SOLVED (PCI/L)	STRON- TIUM 90 DIS- SOLVED (PCI/L)	THIURIUM TOTAL (PCI/L)	CYANIDE TOTAL (MG/L AS CN)
11/27E-17801	79-04-16	0	3	7.5	5.1	4.7	<1.0	<.4	<200	.00
11/27E-26C01	79-04-20	0	0	<5.7	9.0	8.2	<1.0	<.4	<200	.00
12/26E-08P01	79-04-19	0	4	<5.8	7.5	6.4	<1.0	<.4	770000	.00
12/26E-09L01	79-04-17	0	3	<5.4	6.3	5.7	<1.0	<.4	3600	.00
12/26E-13H01	79-04-17	0	2	7.7	38	28	<1.0	<.4	208000	.01
12/26E-15C01	79-04-20	0	2	<7.4	7.3	6.2	<1.0	<.4	<200	.00
12/26E-15J01	79-04-20	0	2	<6.2	5.6	4.9	<1.0	<.4	<200	.00
12/26E-18G01	79-04-19	0	1	<3.7	5.9	5.3	<1.0	<.4	208000	.00
12/27E-15G01	79-04-16	0	2	<6.3	81	75	<1.0	<.4	--	.02
12/27E-18C01	79-04-16	0	1	<5.1	41	38	<1.0	<.4	460000	.01
12/27E-31Q01	79-04-19	0	0	<4.5	4.9	4.3	<1.0	<.4	<200	.00
12/28E-19F01	79-04-16	0	2	8.4	80	73	<1.0	<.4	880000	.02
13/25E-03Q01	79-04-18	0	1	<3.7	3.7	3.4	<1.0	<.4	8800	.00
13/26E-31R01	79-04-17	0	0	<6.1	2.9	2.6	<1.0	<.4	<200	.00
13/26E-34C01	79-04-17	0	14	<8.3	12	11	<1.0	<.4	<200	.00
14/26E-23001	79-04-18	0	0	<4.3	54	49	<1.0	18	1700	.00
14/26E-27801	79-04-18	0	0	<4.5	4.3	<4.5	<1.0	<.4	88000	.00
14/26E-32L03	79-04-18	0	0	<2.4	17	15	<1.0	5.2	3600	.00
14/27E-18H02	79-04-18	0	1	360	670	630	<1.0	1.1	8100	.04
14/27E-33G01	79-04-17	0	0	<3.1	8.6	7.8	<1.0	2.3	--	.00

QUALITY OF WATER

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CHELAN COUNTY

LOCAL IDENT- I- FIER	STATION NUMBER	LAT- I- TUDE	LONG- I- TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH OF WELL- TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. MGVD)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	
22/21E-20M01	472213120115401	47 22 17	120 11 50	01	79-07-12	1425	118	890.00	610	
23/19E-04E01	473112120201001	47 31 12	120 20 18	01	79-07-13	0950	63	820.00	595	
23/19E-05L02	473101120201101	47 31 01	120 29 11	01	79-07-23	1530	60	860.00	575	
23/19E-13M02	472052120292201	47 20 57	120 24 20	01	79-07-13	0845	39	880.00	290	
24/17E-23001	473305120400001	47 33 20	120 40 25	01	79-07-25	1240	80	1150.00	55	
24/18E-17J01	473425120360501	47 34 23	120 36 18	01	79-07-25	1050	20	1040.00	380	
24/18E-22M01	473330120341501	47 33 30	120 34 15	01	79-07-25	0940	62	1120.00	220	
24/18E-35J03	473145120322001	47 31 53	120 32 21	01	79-07-23	1330	30	870.00	540	
25/20E-03D01	474156120191001	47 41 56	120 19 10	01	79-07-12	1000	75	1013.00	165	
25/20E-14001	474010120175001	47 40 10	120 17 50	01	79-07-24	1440	40	890.00	145	
26/20E-20P01	474400120210101	47 43 55	120 21 15	01	79-07-12	0845	40	1235.00	275	
28/22E-20001	475404120045001	47 54 04	120 04 50	01	79-07-24	1025	65	2050.00	610	
28/22E-32P01	475237120085501	47 52 29	120 06 19	01	79-07-11	0845	93	1200.00	560	
LOCAL IDENT- I- FIER	DATE OF SAMPLE	PH (UNITS)	TEMPER- ATURE (DEG C)	COLI- FORM, FECAL, 0.7 UN-MF (COLS./ 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
22/21E-20M01	79-07-12	7.6	14.0	<1	--	--	71	--	35	--
23/19E-04E01	79-07-13	7.3	10.7	--	200	16	44	21	18	16
23/19E-05L02	79-07-23	7.3	13.2	<1	200	0	53	30	23	16
23/19E-13M02	79-07-13	7.3	11.0	<1	120	0	25	15	8.3	12
24/17E-23001	79-07-25	7.2	7.2	--	22	0	1.9	4.3	.9	7
24/18E-17J01	79-07-25	6.9	11.5	<1	130	8	20	19	0.3	12
24/18E-22M01	79-07-25	7.1	11.3	<1	110	10	14	17	3.0	15
24/18E-35J03	79-07-23	7.4	11.0	<1	250	0	31	41	19	14
25/20E-03D01	79-07-12	7.1	9.4	--	71	0	20	5.0	5.1	10
25/20E-14001	79-07-24	7.2	11.0	--	60	9	17	4.3	4.3	13
26/20E-20P01	79-07-12	7.5	13.1	<1	120	2	29	12	6.2	10
28/22E-20001	79-07-24	7.3	11.2	<1	200	0	60	27	25	26
28/22E-32P01	79-07-11	7.4	12.5	<1	140	0	33	14	69	63
LOCAL IDENT- I- FIER	DATE OF SAMPLE	SODIUM AD- SORP- TION RATIO	SODIUM+ POTAS- SIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
22/21E-20M01	79-07-12	--	41	5.5	200	42	13	.2	20	359
23/19E-04E01	79-07-13	.6	20	2.2	180	23	7.4	.2	20	260
23/19E-05L02	79-07-23	.0	25	2.1	240	20	2.0	.3	32	340
23/19E-13M02	79-07-13	.3	11	2.4	130	9.0	2.9	.1	15	164
24/17E-23001	79-07-25	.1	2.8	1.9	22	3.9	.3	.0	14	41
24/18E-17J01	79-07-25	.3	12	3.3	120	21	4.2	.2	41	201
24/18E-22M01	79-07-25	.1	4.4	1.4	95	0.3	1.3	.1	20	120
24/18E-35J03	79-07-23	.5	23	3.9	250	29	5.5	.3	25	321
25/20E-03D01	79-07-12	.3	6.6	1.7	75	5.6	2.4	.1	16	104
25/20E-14001	79-07-24	.2	6.6	2.3	91	10	1.0	.1	21	97
26/20E-20P01	79-07-12	.2	8.6	2.4	120	6.3	1.3	.1	17	163
28/22E-20001	79-07-24	.7	28	2.0	240	44	6.0	.2	38	381
28/22E-32P01	79-07-11	2.5	72	3.2	250	30	3.3	.4	31	349
LOCAL IDENT- I- FIER	DATE OF SAMPLE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	ALUMI- NUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM, DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
22/21E-20M01	79-07-12	.49	2.2	--	--	--	--	--	--	--
23/19E-04E01	79-07-13	.35	3.7	--	--	--	--	--	--	0
23/19E-05L02	79-07-23	.47	3.7	--	--	--	--	--	--	10
23/19E-13M02	79-07-13	.22	1.7	0	1	70	<1	0	100	<0
24/17E-23001	79-07-25	.06	.04	--	--	--	--	--	--	<0
24/18E-17J01	79-07-25	.27	2.7	10	2	70	<1	0	4	<0
24/18E-22M01	79-07-25	.17	1.3	--	--	--	--	--	--	10
24/18E-35J03	79-07-23	.44	3.7	--	--	--	--	--	--	10
25/20E-03D01	79-07-12	.14	.70	0	0	30	<1	0	2	<0
25/20E-14001	79-07-24	.13	1.5	--	--	--	--	--	--	<0
26/20E-20P01	79-07-12	.22	3.8	--	--	--	--	--	--	0
28/22E-20001	79-07-24	.52	.79	--	--	--	--	--	--	<0
28/22E-32P01	79-07-11	.47	3.3	--	--	--	--	--	--	10

QUALITY OF WATER
CHELAN COUNTY--Continued

LOCAL IDENT- I- FIER	DATE OF SAMPLE	LEAD, DIS- SOLVED (UG/L AS PH)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
CHELAN							
22/21E-28H01	79-07-12	--	--	--	--	--	--
23/19E-04E01	79-07-13	--	<1	--	--	--	--
23/19E-05L02	79-07-23	--	<1	.0	0	0	.40
23/19E-13H02	79-07-13	0	<1	--	--	--	--
24/17E-23H01	79-07-25	--	<1	--	--	--	--
24/18E-17J01	79-07-25	3	<1	.0	0	0	<3
24/18E-22H01	79-07-25	--	1	--	--	--	--
24/18E-35J03	79-07-23	--	1	--	--	--	--
25/20E-03H01	79-07-12	0	<1	.0	0	0	<3
25/20E-03H01	79-07-24	--	<1	--	--	--	--
25/20E-14H01	79-07-24	--	<1	--	--	--	--
26/20E-20P01	79-07-12	--	<1	--	--	--	--
26/22E-28H01	79-07-24	--	<1	--	--	--	--
26/22E-32P01	79-07-11	--	<1	--	--	--	--

DOUGLAS COUNTY

DOUGLAS COUNTY										
LOCAL IDENT- I- FIER	STATION	NUMBER	LAT- I- TUDE	LONG- I- TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. NGVD)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)
22/21E-26H01	4722281	20094801	47 22 28	120 09 48	01	79-07-25	0815	82	670.00	420
23/20E-10H01	4729381	20180801	47 29 38	120 18 08	01	79-07-12	1645	95	650.00	500
23/20E-35H01	4726091	20180801	47 26 09	120 18 00	01	79-07-12	1530	50	651.00	550
25/21E-16K01	4739431	20121701	47 39 44	120 12 25	01	79-07-11	1255	115	760.00	510
25/21E-32K02	4737351	20131801	47 37 35	120 13 18	01	79-07-11	1145	97	720.00	725
26/21E-11H02	4746051	20099402	47 46 00	120 09 28	01	79-07-11	1530	164	720.00	255
26/21E-21H02	4743481	20124801	47 43 48	120 12 48	01	79-07-11	1410	159	801.00	520
LOCAL IDENT- I- FIER	DATE OF SAMPLE	PH (UNITS)	TEMPER- ATURE (DEG C)	COLI- FORM, FECAL, 0.7 UN-HF (COLS./ 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
22/21E-26H01	79-07-25	7.3	15.0	<1	180	0	52	11	19	23
23/20E-10H01	79-07-12	7.6	13.8	<1	190	0	48	17	23	20
23/20E-35H01	79-07-12	7.5	14.7	--	230	0	65	16	23	18
25/21E-16K01	79-07-11	7.3	11.0	--	270	37	82	15	8.5	9
25/21E-32K02	79-07-11	7.3	13.1	<1	300	30	79	25	18	11
26/21E-11H02	79-07-11	7.7	12.2	--	110	19	32	7.2	5.7	10
26/21E-21H02	79-07-11	7.6	14.0	--	250	110	76	14	14	11
LOCAL IDENT- I- FIER	DATE OF SAMPLE	SODIUM AD- SORP- TION RATIO	SODIUM+ POTAS- SIUM DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
22/21E-26H01	79-07-25	.6	23	4.2	180	28	4.2	.4	.2	263
23/20E-10H01	79-07-12	.7	28	4.7	210	44	3.6	.3	.2	299
23/20E-35H01	79-07-12	.7	27	4.1	230	23	14	.3	.2	329
25/21E-16K01	79-07-11	.2	11	2.3	230	29	3.4	.2	.2	311
25/21E-32K02	79-07-11	.5	22	3.8	270	65	28	.2	.2	419
26/21E-11H02	79-07-11	.2	7.6	1.9	91	24	2.2	.2	.13	145
26/21E-21H02	79-07-11	.4	18	4.2	140	120	7.1	.3	.21	356
LOCAL IDENT- I- FIER	DATE OF SAMPLE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
22/21E-26H01	79-07-25	.36	4.4	0	--	--	--	0	2	--
23/20E-10H01	79-07-12	.41	2.4	--	--	--	--	--	--	10
23/20E-35H01	79-07-12	.49	6.4	--	--	--	--	--	--	10
25/21E-16K01	79-07-11	.42	2.3	--	--	--	--	--	--	0
25/21E-32K02	79-07-11	.57	2.4	--	--	--	--	--	--	<0
26/21E-11H02	79-07-11	.20	.86	--	--	--	--	--	--	10
26/21E-21H02	79-07-11	.48	3.4	0	2	80	<1	0	2	10

QUALITY OF WATER

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DOUGLAS COUNTY--Continued

LOCAL IDENT- I- FIER	DATE OF SAMPLE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)	PHENOLS (UG/L)
22/21E-26B01	79-07-25	0	--	.0	0	0	--	
23/20E-10R01	79-07-12	--	<1	--	--	--	--	
23/20E-35N01	79-07-12	--	<1	--	--	--	--	
25/21E-16K01	79-07-11	--	<1	--	--	--	--	
25/21E-32K02	79-07-11	--	<1	--	--	--	--	
26/21E-11M02	79-07-11	--	<1	--	--	--	--	
26/21E-21N02	79-07-11	0	<1	.0	1	0	<3	

FERRY COUNTY

LOCAL IDENT- I- FIER	STATION	NUMBER	LAT- I- TUDE	LONG- I- TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. NGVD)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)
29/33E-04M01	480228110406901	48 02 28	110 40 09	01	79-06-25	1235	205	1304.00	292	
32/33E-32N01	481332110413001	48 13 32	110 41 30	01	79-06-25	1120	18	1440.00	225	
36/33E-07F01	483705110434501	48 38 12	110 43 41	01	79-06-25	0820	80	2270.00	355	
37/33E-08J01	484304110394101	48 43 04	110 39 41	01	79-06-24	1400	97	2330.00	490	
37/37E-08A02	484327110074501	48 43 28	110 07 42	01	79-06-22	1445	64	1340.00	408	
37/37E-08R02	484240110075501	48 42 51	110 07 50	01	79-06-23	1125	41	1320.00	525	
38/33E-11N01	484757110363701	48 47 57	110 36 37	01	79-06-23	1425	63	2200.00	285	
39/33E-01J01	485418110341701	48 54 18	110 34 11	01	79-06-24	1245	36	1750.00	135	

LOCAL IDENT- I- FIER	DATE OF SAMPLE	PH (UNITS)	TEMPER- ATURE (DEG C)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	HARD- NESS (MG/L AS CAC03)	HARD- NESS, NONCAR- BONATE (MG/L CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
29/33E-04M01	79-06-25	7.4	11.0	<1	120	0	35	9.0	9.1	14
32/33E-32N01	79-06-25	7.0	9.4	<1	98	9	21	11	6.6	13
36/33E-07F01	79-06-25	7.3	8.2	<1	140	31	40	10	15	19
37/33E-08J01	79-06-24	7.6	10.0	<1	220	21	54	21	14	12
37/37E-08A02	79-06-22	7.4	13.0	<1	100	14	49	15	6.1	7
37/37E-08R02	79-06-23	7.4	13.6	<1	240	0	61	21	16	13
38/33E-11N01	79-06-23	7.4	8.4	<1	120	0	33	9.6	9.4	14
39/33E-01J01	79-06-24	7.1	10.4	--	0	0	--	--	--	--

LOCAL IDENT- I- FIER	DATE OF SAMPLE	SODIUM AD- SORP- TION RATIO	SODIUM+ POTAS- SIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
29/33E-04M01	79-06-25	.4	11	1.4	130	20	.7	.3	21	175
32/33E-32N01	79-06-25	.3	7.8	1.2	89	13	3.1	.4	25	139
36/33E-07F01	79-06-25	.6	17	2.2	110	52	5.2	.3	27	222
37/33E-08J01	79-06-24	.4	16	2.3	200	49	2.4	.5	17	288
37/37E-08A02	79-06-22	.2	7.1	1.0	170	27	4.5	.4	17	230
37/37E-08R02	79-06-23	.5	20	4.0	260	30	1.3	.5	15	305
38/33E-11N01	79-06-23	.4	11	2.0	130	13	1.5	.3	12	160
39/33E-01J01	79-06-24	--	--	--	56	0.3	1.3	.3	--	44

QUALITY OF WATER
FERRY COUNTY--Continued

LOCAL IDENT- I- FIER	DATE OF SAMPLE	SOLIDS- DIS- (TONS PER AC-FT)	NITRO- GEN- NO2-NO3 SOLVED (MG/L AS N)	ALUM- INUM- DIS- SOLVED (MG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM DIS- SOLVED (UG/L AS CR)	COPPER DIS- SOLVED (UG/L AS CU)	IRON DIS- SOLVED (UG/L AS FE)
29/33E-04M01	79-06-25	.24	.00	10	5	40	1	0	0	0
32/33E-32N01	79-06-25	.19	.06	--	--	--	--	--	--	20
36/33E-07F01	79-06-25	.30	1.0	0	5	40	<1	0	4	10
37/33E-08J01	79-06-24	.39	1.6	--	--	--	--	--	--	40
37/37E-08A02	79-06-22	.31	1.7	--	--	--	--	--	--	10
37/37E-08R02	79-06-23	.41	.00	--	--	--	--	--	--	0
38/33E-11N01	79-06-23	.22	.24	--	--	--	--	--	--	30
39/33E-01J01	79-06-24	.06	.14	--	--	--	--	--	--	--

LOCAL IDENT- I- FIER	DATE OF SAMPLE	LEAD- DIS- SOLVED (UG/L AS PB)	MANGA- NESE- DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM DIS- SOLVED (UG/L AS SE)	SILVER DIS- SOLVED (UG/L AS AG)	ZINC DIS- SOLVED (UG/L AS ZN)	PHENOLS (UG/L)
29/33E-04M01	79-06-25	0	<1	.4	0	0	10	--
32/33E-32N01	79-06-25	--	<1	--	--	--	--	--
36/33E-07F01	79-06-25	0	<1	.5	2	0	20	--
37/33E-08J01	79-06-24	--	<1	--	--	--	--	--
37/37E-08A02	79-06-22	--	<1	--	--	--	--	--
37/37E-08R02	79-06-23	--	3	--	--	--	--	--
38/33E-11N01	79-06-23	--	1	--	--	--	--	--
39/33E-01J01	79-06-24	--	--	--	--	--	--	--

OKANOGAN COUNTY

LOCAL IDENT- I- FIER	STATION NUMBER	LAT- I- TUDE	LONG- I- TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH OF WELL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. NGVD)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)
30/22E-13G01	480600120010801	48 05 59	120 01 12	01	79-07-10	1305	52	1040.00	215
30/25E-10N01	480620119410901	48 06 30	119 40 58	01	79-06-28	1315	61	780.00	610
31/22E-26N01	480900120031501	48 09 07	120 03 19	01	79-07-10	1135	41	1210.00	240
31/25E-15C01	481120119405101	48 11 20	119 40 51	01	79-06-28	1505	223	795.00	540
32/22E-10F01	481720120041501	48 17 20	120 04 15	01	79-07-10	1030	105	1480.00	290
32/25E-02A01	481829119305301	48 18 29	119 38 53	01	79-06-28	0800	88	850.00	545
32/25E-04P01	481744119421101	48 17 44	119 42 11	01	79-06-28	0925	237	1030.00	675
32/25E-29001	481456119434001	48 14 56	119 43 40	01	79-06-28	1030	142	860.00	530
33/22E-17001	482154120070701	48 21 54	120 07 07	01	79-07-09	1525	100	1608.71	176
33/26E-09R01	482240119340001	48 22 40	119 34 00	01	79-06-27	1405	117	840.00	670
33/26E-30L01	481936119370401	48 19 36	119 37 04	01	79-06-27	1530	78	900.00	690
34/26E-02P01	482012119315001	48 20 12	119 31 50	01	79-06-27	1130	117	1320.00	710
34/27E-20F01	482612119274701	48 26 12	119 27 47	01	79-06-27	1310	73	880.00	430
35/21E-32K01	482919120141701	48 29 19	120 14 17	01	79-07-10	0815	103	1830.00	160
35/26E-03C01	483345119330901	48 34 08	119 33 07	01	79-06-27	0915	82	1021.00	770
36/26E-13K02	483705119300501	48 37 10	119 30 15	01	79-06-27	0755	172	1050.00	585
37/27E-16L03	484214119263001	48 42 14	119 26 30	01	79-06-26	1445	73	900.00	620
37/27E-20K01	484110119272801	48 41 15	119 27 35	01	79-06-26	1605	52	920.00	690
39/25E-26R01	485122119392101	48 51 22	119 39 21	01	79-06-26	0935	78	1220.00	460
39/25E-35A01	485032119390301	48 50 32	119 39 03	01	79-06-26	0835	90	--	224
39/27E-28J01	485056119254301	48 50 56	119 25 43	01	79-06-26	1355	25	920.00	790
40/25E-08J02	485844119425501	48 58 44	119 42 55	01	79-06-26	1110	110	1135.00	245

OKANOGAN COUNTY--Continued

LOCAL IDENT- IFIER	DATE OF SAMPLE	PH (UNITS)	TEMPER- ATURE (DEG C)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
30/22E-13G01	79-07-10	7.8	11.0	<1	89	0	28	4.7	5.4	11
30/25E-10N01	79-06-28	7.7	14.0	--	250	12	63	23	28	19
31/22E-26N01	79-07-10	7.6	11.0	<1	100	0	31	6.2	6.6	12
31/25E-15C01	79-06-28	7.6	14.0	--	210	31	55	18	27	21
32/22E-10F01	79-07-10	7.8	12.3	--	82	1	21	7.1	4.6	11
32/25E-02A01	79-06-28	7.5	13.3	--	260	76	71	19	8.6	7
32/25E-04P01	79-06-28	7.5	13.0	--	300	84	82	24	21	13
32/25E-29001	79-06-28	7.8	13.8	<1	260	44	66	24	9.8	7
33/22E-17001	79-07-09	7.4	8.8	<1	74	3	23	4.1	3.0	8
33/26E-09801	79-06-27	7.5	15.2	<1	300	140	64	33	20	21
33/26E-30L01	79-06-27	7.5	14.8	<1	320	120	92	23	17	13
34/26E-02P01	79-06-27	7.2	11.0	--	330	94	94	24	20	11
34/27E-20F01	79-06-27	7.4	12.4	--	190	0	43	19	15	15
35/21E-32K01	79-07-10	7.3	10.5	<1	71	0	21	4.4	2.7	8
35/26E-03C01	79-06-27	7.5	11.0	--	370	110	96	31	24	12
36/26E-13K02	79-06-27	7.4	12.5	<1	270	39	65	26	15	11
37/27E-16L03	79-06-26	7.4	10.8	<1	240	0	68	17	28	26
37/27E-26K01	79-06-26	7.5	12.0	--	290	0	81	21	27	17
39/25E-26801	79-06-26	7.4	12.2	--	190	0	53	15	15	19
39/25E-35A01	79-06-26	7.3	8.2	--	98	0	28	6.7	5.2	10
39/27E-28J01	79-06-26	7.3	13.0	--	340	86	80	33	31	16
40/25E-08J02	79-06-26	7.6	10.0	--	110	0	36	4.8	4.1	7

LOCAL IDENT- IFIER	DATE OF SAMPLE	SODIUM AD- SORP- TION RATIO	SODIUM+ POTAS- SIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINEITY AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
30/22E-13G01	79-07-10	.2	6.7	1.3	89	10	1.0	.2	13	121
30/25E-10N01	79-06-28	.8	33	5.3	240	80	4.6	.2	19	372
31/22E-26N01	79-07-10	.3	7.8	1.2	110	11	.8	.2	15	142
31/25E-15C01	79-06-28	.8	32	5.0	180	94	4.1	.4	20	334
32/22E-10F01	79-07-10	.4	6.0	1.4	81	17	1.1	.2	14	118
32/25E-02A01	79-06-28	.2	14	5.3	180	65	2.9	.1	20	313
32/25E-04P01	79-06-28	.5	28	6.5	220	140	2.9	.3	21	432
32/25E-29001	79-06-28	.3	14	4.2	220	62	3.0	.3	23	325
33/22E-17001	79-07-09	.2	3.5	.5	71	9.4	1.3	.1	11	97
33/26E-09801	79-06-27	.5	27	7.1	160	190	2.7	.6	23	437
33/26E-30L01	79-06-27	.4	25	7.8	200	150	15	.3	19	447
34/26E-02P01	79-06-27	.5	26	6.3	240	130	4.2	.3	22	450
34/27E-20F01	79-06-27	.5	18	3.4	190	33	3.2	.3	18	253
35/21E-32K01	79-07-10	.1	3.2	.5	75	6.0	.5	.1	9.9	91
35/26E-03C01	79-06-27	.5	29	5.4	260	160	5.0	.4	22	510
36/26E-13K02	79-06-27	.4	18	3.4	230	72	2.7	.4	20	348
37/27E-16L03	79-06-26	.8	33	4.5	250	49	17	.5	23	359
37/27E-26K01	79-06-26	.7	32	5.4	290	48	5.8	.6	39	403
39/25E-26801	79-06-26	.5	20	5.1	200	41	3.4	.2	19	276
39/25E-35A01	79-06-26	.2	7.4	2.2	98	15	.9	.1	18	136
39/27E-28J01	79-06-26	.7	37	6.4	250	240	3.2	.5	26	580
40/25E-08J02	79-06-26	.2	5.4	1.3	110	16	.7	.1	16	145

QUALITY OF WATER
OKANOGAN COUNTY.--Continued

LOCAL IDENT- IFIER	DATE OF SAMPLE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
30/22E-13001	79-07-10	.16	.77	--	--	--	--	--	--	10
30/25E-10N01	79-06-28	.51	1.0	10	5	50	<1	0	3	<0
31/22E-26N01	79-07-10	.19	.85	--	--	--	--	--	--	<0
31/25E-15C01	79-06-28	.45	.00	--	--	--	--	--	--	60
32/22E-10F01	79-07-10	.16	.55	--	--	--	--	--	--	<0
32/25E-02A01	79-06-28	.43	3.0	--	--	--	--	--	--	10
32/25E-04P01	79-06-28	.59	.52	--	--	--	--	--	--	10
32/25E-29001	79-06-28	.44	.00	--	--	--	--	--	--	110
33/22E-17D01	79-07-09	.13	.53	0	0	10	<1	0	0	0
33/26E-09R01	79-06-27	.59	.09	20	6	40	<1	0	2	<0
33/26E-30L01	79-06-27	.61	.68	--	--	--	--	--	--	10
34/26E-02P01	79-06-27	.61	1.1	--	--	--	--	--	--	20
34/27E-20F01	79-06-27	.34	.82	--	--	--	--	--	--	<0
35/21E-32K01	79-07-10	.12	.09	--	--	--	--	--	--	<0
35/26E-03C01	79-06-27	.69	2.2	--	--	--	--	--	--	10
36/26E-13K02	79-06-27	.47	1.2	--	--	--	--	--	--	40
37/27E-16L03	79-06-26	.49	.45	10	2	40	<1	0	1	<0
37/27E-20K01	79-06-26	.55	.05	--	--	--	--	--	--	130
39/25E-26B01	79-06-26	.38	.95	--	--	--	--	--	--	10
39/25E-35A01	79-06-26	.19	.03	--	--	--	--	--	--	340
39/27E-28J01	79-06-26	.79	2.1	--	--	--	--	--	--	10
40/25E-08J02	79-06-26	.20	.00	--	--	--	--	--	--	0

LOCAL IDENT- IFIER	DATE OF SAMPLE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)	PHENOLS (UG/L)
30/22E-13001	79-07-10	--	<1	--	--	--	--	--
30/25E-10N01	79-06-28	0	30	.0	12	0	3	--
31/22E-26N01	79-07-10	--	<1	--	--	--	--	--
31/25E-15C01	79-06-28	--	140	--	--	--	--	--
32/22E-10F01	79-07-10	--	<1	--	--	--	--	--
32/25E-02A01	79-06-28	--	<1	--	--	--	--	--
32/25E-04P01	79-06-28	--	<1	--	--	--	--	--
32/25E-29001	79-06-28	--	90	--	--	--	--	--
33/22E-17D01	79-07-09	0	2	.0	0	0	10	--
33/26E-09R01	79-06-27	0	100	.0	1	0	<3	--
33/26E-30L01	79-06-27	--	<1	--	--	--	--	--
34/26E-02P01	79-06-27	--	<1	--	--	--	--	--
34/27E-20F01	79-06-27	--	4	--	--	--	--	--
35/21E-32K01	79-07-10	--	<1	--	--	--	--	--
35/26E-03C01	79-06-27	--	<1	--	--	--	--	--
36/26E-13K02	79-06-27	--	20	--	--	--	--	--
37/27E-16L03	79-06-26	0	<1	.0	0	0	5	--
37/27E-20K01	79-06-26	--	330	--	--	--	--	--
39/25E-26B01	79-06-26	--	<1	--	--	--	--	--
39/25E-35A01	79-06-26	--	60	--	--	--	--	--
39/27E-28J01	79-06-26	--	<1	--	--	--	--	--
40/25E-08J02	79-06-26	--	<1	--	--	--	--	--

QUALITY OF WATER

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PEND OREILLE COUNTY

LOCAL IDENT- I- FIER	STATION NUMBER	LAT- I- TUDE	LONG- I- TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH OF WELL: TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. NGVD)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)
31/45E-24001	481044117031401	48 10 44	117 03 14	01	79-07-18	1315	175	2166.00	330
31/45E-34001	480902117060401	48 08 47	117 05 50	01	79-08-03	1310	208	2240.00	211
32/44E-07001	481653117170301	48 16 53	117 17 03	01	79-07-18	1120	77	2070.00	470
32/44E-27001	481444117133101	48 14 44	117 13 31	01	79-08-02	1130	90	2050.00	360
32/44E-36001	481414117112101	48 14 14	117 11 21	01	79-08-02	1200	57	2065.00	292
32/45E-33001	481402117064601	48 14 02	117 06 46	01	79-08-02	1340	91	2040.00	200
32/45E-34001	480858117065401	48 13 38	117 06 04	01	79-08-03	1155	171	2145.00	240
33/43E-11001	482206117203701	48 22 10	117 20 48	01	79-08-03	1045	160	2200.00	345
35/43E-12L01	483305117190101	48 33 05	117 19 01	01	79-08-03	0910	60	2120.00	567
36/43E-35F01	483448117201701	48 34 48	117 20 17	01	79-08-02	1000	87	--	504
37/43E-29K01	484036117234301	48 40 36	117 23 43	01	79-08-02	0830	90	2080.00	450

LOCAL IDENT- I- FIER	DATE OF SAMPLE	PH (UNITS)	TEMPER- ATURE (DEG C)	COLI- FORM, FECAL, 0.7 UM-WF (COLS./ 100 ML)	HARD- NESS (MG/L AS CAC03)	HARD- NESS, NONCAR- BONATE (MG/L CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
31/45E-24001	79-07-18	7.9	10.5	<1	140	14	41	10	8.1	11
31/45E-34001	79-08-03	8.2	16.2	<1	110	9	29	8.8	3.6	10
32/44E-07001	79-07-18	7.5	10.9	<1	240	2	74	14	5.5	5
32/44E-27001	79-08-02	8.0	12.4	<1	180	0	53	11	11	15
32/44E-36001	79-08-02	7.8	12.2	<1	140	3	42	9.2	4.9	9
32/45E-33001	79-08-02	8.2	11.4	<1	96	9	26	7.5	3.1	9
32/45E-34001	79-08-03	8.0	11.4	<1	120	0	35	7.7	3.3	7
33/43E-11001	79-08-03	7.8	12.0	<1	180	0	47	15	6.6	11
35/43E-12L01	79-08-03	7.2	15.0	<1	290	10	78	23	4.1	4
36/43E-35F01	79-08-02	7.4	9.8	<1	240	3	74	19	5.2	6
37/43E-29K01	79-08-02	6.7	9.1	<1	220	0	65	14	9.9	12

LOCAL IDENT- I- FIER	DATE OF SAMPLE	SODIUM AD- SORP- TION RATIO	SODIUM+ POTAS- SIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY DIS- SOLVED (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
31/45E-24001	79-07-18	.3	10	2.2	130	11	7.6	.1	24	207
31/45E-34001	79-08-03	.2	5.1	1.5	100	14	.5	.1	15	134
32/44E-07001	79-07-18	.2	8.2	2.7	240	7.9	1.9	.3	18	269
32/44E-27001	79-08-02	.4	13	2.4	190	15	.8	.2	19	226
32/44E-36001	79-08-02	.2	6.4	1.5	140	14	.6	.1	17	174
32/45E-33001	79-08-02	.1	4.1	1.0	87	15	.5	.1	14	120
32/45E-34001	79-08-03	.1	4.8	1.5	120	13	1.2	.1	13	148
33/43E-11001	79-08-03	.2	9.3	2.7	180	14	.5	.1	18	213
35/43E-12L01	79-08-03	.1	6.7	2.6	260	22	1.2	.1	17	317
36/43E-35F01	79-08-02	.1	6.8	1.6	260	16	1.0	.2	26	305
37/43E-29K01	79-08-02	.3	12	2.1	220	22	.7	.1	21	269

LOCAL IDENT- I- FIER	DATE OF SAMPLE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
31/45E-24001	79-07-18	--	5.6	0	3	60	2	0	15	10
31/45E-34001	79-08-03	.18	.18	--	--	--	--	--	--	80
32/44E-07001	79-07-18	.37	.05	--	--	--	--	--	--	130
32/44E-27001	79-08-02	.31	.17	--	--	--	--	--	--	140
32/44E-36001	79-08-02	.24	.06	--	--	--	--	--	--	0
32/45E-33001	79-08-02	.16	.08	--	--	--	--	--	--	110
32/45E-34001	79-08-03	.20	.14	--	--	--	--	--	--	340
33/43E-11001	79-08-03	.29	.02	--	--	--	--	--	--	360
35/43E-12L01	79-08-03	.43	.04	--	--	--	--	--	--	230
36/43E-35F01	79-08-02	.41	1.2	0	1	50	<1	10	2	10
37/43E-29K01	79-08-02	.37	.02	--	--	--	--	--	--	1800

QUALITY OF WATER
PEND OREILLE COUNTY--Continued

LOCAL IDENT- I- FIER	DATE OF SAMPLE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)	PHENOLS (UG/L)
31/45E-24801	79-07-18	2	7	.0	0	0	70	--
31/45E-34801	79-08-03	--	2	--	--	--	--	--
32/44E-07801	79-07-18	--	320	--	--	--	--	--
32/44E-27601	79-08-02	--	240	--	--	--	--	--
32/44E-36C01	79-08-02	--	590	--	--	--	--	--
32/45E-33801	79-08-02	--	1	--	--	--	--	--
32/45E-34801	79-08-03	--	7	--	--	--	--	--
33/43E-11801	79-08-03	--	100	--	--	--	--	--
35/43E-12L01	79-08-03	--	10	--	--	--	--	--
36/43E-35F01	79-08-02	2	41	.0	2	0	150	--
37/43E-29K01	79-08-02	--	180	--	--	--	--	--

SPOKANE COUNTY

LOCAL IDENT- I- FIER	STATION NUMBER	LAT- I- TITUDE	LONG- I- TITUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. NGVD)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)
24/41E-15A02	473442117363001	47 34 42	117 36 30	01	79-07-19	1300	148	2420.00	155
24/42E-25801	473239117262001	47 32 39	117 26 20	01	79-07-20	1145	122	2310.00	226
25/41E-19803	473912117404001	47 39 27	117 40 28	01	79-07-16	1240	325	2405.00	244
25/42E-04801	474159117301301	47 41 59	117 30 13	01	79-07-20	1045	275	1860.00	212
25/42E-11E01	474048117282201	47 40 48	117 28 22	01	79-08-22	1005	201	1707.00	261
25/43E-04802	474200117223901	47 42 00	117 22 39	01	79-07-10	1050	227	2047.00	274
25/43E-08A01	474100117233601	47 41 00	117 23 36	01	79-07-05	1030	124	1946.00	234
25/43E-23A01	473920117194501	47 39 17	117 19 41	01	79-06-19	1415	142	1935.00	342
25/44E-03801	474152117133801	47 41 54	117 13 40	01	79-06-20	0855	122	1989.80	515
25/44E-07C01	474057117174101	47 40 57	117 17 41	01	79-06-20	0935	90	1956.00	310

LOCAL IDENT- I- FIER	DATE OF SAMPLE	PH (UNITS)	TEMPER- ATURE (DEG C)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
24/41E-15A02	79-07-19	7.6	12.1	--	63	10	17	5.1	4.4	13
24/42E-25801	79-07-20	7.9	12.6	--	83	0	21	7.5	8.4	17
25/41E-19803	79-07-16	6.9	15.3	--	90	0	18	11	13	23
25/42E-04801	79-07-20	8.4	12.3	--	90	6	18	11	4.5	9
25/42E-11E01	79-06-22	8.0	10.4	<1	130	28	33	11	3.8	6
25/43E-04802	79-07-10	7.7	10.8	<1	130	8	28	14	3.4	5
25/43E-08A01	79-07-05	8.0	11.1	<1	120	11	32	10	3.1	5
25/43E-23A01	79-06-19	7.5	11.4	<1	170	32	44	15	6.1	7
25/44E-03801	79-06-20	7.4	11.5	<1	260	35	68	23	8.6	6
25/44E-07C01	79-06-20	7.5	10.8	--	210	75	58	17	4.2	4

LOCAL IDENT- I- FIER	DATE OF SAMPLE	SODIUM AD- SORP- TION RATIO	SODIUM, POTAS- SIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
24/41E-15A02	79-07-19	.2	6.0	1.6	53	6.5	1.9	.2	44	127
24/42E-25801	79-07-20	.4	11	2.9	92	9.0	2.2	.3	48	160
25/41E-19803	79-07-16	.6	15	2.3	110	9.5	2.1	.4	46	169
25/42E-04801	79-07-20	.2	7.1	2.6	84	16	3.5	.1	40	149
25/42E-11E01	79-06-22	.1	5.7	1.9	100	18	4.1	.1	11	147
25/43E-04802	79-07-10	.1	5.5	2.1	120	15	2.5	.1	12	154
25/43E-08A01	79-07-05	.1	4.9	1.4	110	15	2.2	.1	11	146
25/43E-23A01	79-06-19	.2	7.5	1.4	140	15	5.9	.1	14	199
25/44E-03801	79-06-20	.2	13	4.3	230	19	8.5	.1	22	318
25/44E-07C01	79-06-20	.1	6.5	2.3	140	16	2.7	.1	9.8	200

QUALITY OF WATER

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SPOKANE COUNTY--Continued

LOCAL IDENT- I- FIER	DATE OF SAMPLE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
24/41E-15A02	79-07-19	.17	3.2	0	2	20	<1	0	1	10
24/42E-25G01	79-07-20	.22	1.3	--	--	--	--	--	--	0
25/41E-19B03	79-07-16	.23	.17	--	--	--	--	--	--	0
25/42E-04R01	79-07-20	.20	.79	--	--	--	--	--	--	0
25/42E-11E01	79-06-22	.20	.84	--	--	--	--	--	--	10
25/43E-04R02	79-07-10	.21	1.1	--	--	--	--	--	--	0
25/43E-08A01	79-07-05	.20	1.1	--	--	--	--	--	--	10
25/43E-23A01	79-06-19	.27	3.0	--	--	--	--	--	--	10
25/44E-03B01	79-06-20	.43	5.0	0	2	100	1	0	1	10
25/44E-07C01	79-06-20	.27	1.4	--	--	--	--	--	--	20

LOCAL IDENT- I- FIER	DATE OF SAMPLE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)	PHENOLS (UG/L)
24/41E-15A02	79-07-19	0	<1	1.9	0	0	110	--
24/42E-25G01	79-07-20	--	<1	--	--	--	--	--
25/41E-19B03	79-07-16	--	10	--	--	--	--	--
25/42E-04R01	79-07-20	--	<1	--	--	--	--	--
25/42E-11E01	79-06-22	--	10	--	--	--	--	--
25/43E-04R02	79-07-10	--	<1	--	--	--	--	--
25/43E-08A01	79-07-05	--	<1	--	--	--	--	--
25/43E-23A01	79-06-19	--	10	--	--	--	--	--
25/44E-03B01	79-06-20	2	0	0	0	0	20	0
25/44E-07C01	79-06-20	--	0	--	--	--	--	--

LOCAL IDENT- I- FIER	STATION NUMBER	LAT- I- TUDE	LONG- I- TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	DEPTH OF WELL TOTAL (FEET)	DEPTH TO BOT- TOM OF SAMPLE INTER- VAL (FT)
25/44E-07J03	474034117170001	47 40 34	117 17 00	01	79-03-20	0700	76.00	--	78
					79-04-12	0800	75.40	--	76
					79-04-12	0830	75.40	--	79
					79-04-12	0915	75.40	--	85
					79-05-08	0830	72.30	--	73
					79-05-08	0915	72.30	--	76
					79-05-08	1000	72.30	--	82
					79-06-14	0945	73.60	--	74
					79-06-14	1010	73.60	--	77
					79-06-14	1035	73.60	--	83
					79-07-23	0915	78.40	--	79
					79-07-23	0835	78.40	--	82
					79-07-23	0900	78.40	--	88
					79-08-28	0800	80.40	--	81
					79-08-28	0820	80.40	--	84
					79-08-28	0835	80.40	--	90
					79-09-20	0845	80.10	--	80
					79-09-20	0905	80.10	--	84
					79-09-20	0920	80.10	--	90
25/44E-07K01	474041117172601	47 40 41	117 17 26	01	79-03-20	1500	67.70	116	70
25/44E-07K02	474040117172601	47 40 40	117 17 26	01	78-10-12	1300	69.99	117	71
					78-10-12	1315	69.99	117	74
					78-10-12	1330	69.99	117	80
					78-10-12	1345	69.99	117	95
					78-10-12	1400	69.99	117	111
					78-11-06	1015	70.60	117	72
					78-11-06	1045	70.60	117	75
					78-11-06	1115	70.60	117	81
					78-11-06	1145	70.60	117	95
					78-11-06	1215	70.60	117	112
					78-12-12	1330	71.09	117	72
					78-12-12	1410	71.09	117	75
					78-12-12	1440	71.09	117	81

QUALITY OF WATER

SPOKANE COUNTY--Continued

LOCAL IDENT- IFIER	DATE OF SAMPLE	DEPTH TO TOP OF SAMPLE INTER- VAL (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
25/44E-07J03	79-03-20	77	300	8.4	160	17	35	17	5.8	7
	79-04-12	75	285	8.2	140	3	31	16	2.9	4
	79-04-12	78	285	8.2	140	3	31	16	3.1	4
	79-04-12	84	285	8.2	140	3	31	16	3.0	4
	79-05-08	72	287	8.2	150	20	32	17	3.1	4
	79-05-08	75	287	8.2	140	13	31	16	3.1	4
	79-05-08	81	287	8.2	140	13	31	16	3.1	4
	79-06-14	73	301	8.2	--	--	--	--	--	--
	79-06-14	76	294	8.2	--	--	--	--	--	--
	79-06-14	82	292	8.2	--	--	--	--	--	--
	79-07-23	78	296	8.6	--	--	--	--	--	--
	79-07-23	81	292	8.6	--	--	--	--	--	--
	79-07-23	87	293	8.1	--	--	--	--	--	--
	79-08-28	80	294	--	--	--	--	--	--	--
	79-08-28	83	294	--	--	--	--	--	--	--
25/44E-07K01	79-08-28	89	293	--	--	--	--	--	--	--
	79-09-20	80	301	8.0	--	--	--	--	--	--
	79-09-20	83	300	8.0	--	--	--	--	--	--
	79-09-20	89	300	8.0	--	--	--	--	--	--
	79-03-20	60	325	8.4	170	22	39	18	4.7	6
25/44E-07K02	78-10-12	70	321	8.5	170	22	39	18	4.3	5
	78-10-12	73	322	8.5	170	20	40	17	4.0	5
	78-10-12	79	322	8.5	160	25	38	17	3.9	5
	78-10-12	94	310	8.5	170	17	39	17	3.9	5
	78-10-12	110	310	8.5	160	10	36	17	3.8	5
	78-11-06	71	309	9.5	170	22	41	17	3.9	5
	78-11-06	74	306	9.5	170	32	39	18	3.9	5
	78-11-06	80	306	9.5	170	27	39	17	3.9	5
	78-11-06	95	303	9.5	160	20	36	17	3.6	5
	78-11-06	111	303	9.5	160	17	33	18	3.7	5
	78-12-12	71	310	7.8	160	10	36	17	3.9	5
	78-12-12	74	307	8.2	160	20	36	17	3.7	5
	78-12-12	80	308	8.2	160	10	36	17	3.8	5
25/44E-07J03	79-03-20	2	2.0	140	16	1.1	11	11	166	172
	79-04-12	1	1.7	140	15	1.2	11	11	161	163
	79-04-12	1	1.7	140	15	1.1	11	11	159	163
	79-04-12	1	1.6	140	14	1.2	11	11	162	162
	79-05-08	1	2.1	130	15	1.1	11	12	153	161
	79-05-08	1	2.0	130	15	1.1	11	11	154	157
	79-05-08	1	2.1	130	30	1.1	11	11	156	173
	79-06-14	--	--	130	--	1.5	--	--	--	--
	79-06-14	--	--	130	--	1.4	--	--	--	--
	79-06-14	--	--	130	--	1.4	--	--	--	--
	79-07-23	--	--	140	--	2.9	--	--	--	--
	79-07-23	--	--	140	--	1.8	--	--	--	--
	79-07-23	--	--	140	--	2.4	--	--	--	--
	79-08-28	--	--	140	--	1.7	--	--	--	--
	79-08-28	--	--	140	--	1.6	--	--	--	--
25/44E-07K01	79-08-28	--	--	140	--	1.6	--	--	--	--
	79-09-20	--	--	140	--	1.5	--	--	--	--
	79-09-20	--	--	140	--	1.5	--	--	--	--
	79-09-20	--	--	140	--	1.5	--	--	--	--
	79-03-20	2	2.2	150	17	3.5	11	11	184	186
25/44E-07K02	78-10-12	1	2.1	150	17	3.0	11	11	178	185
	78-10-12	1	2.1	150	17	3.1	11	11	180	184
	78-10-12	1	2.1	140	18	3.5	11	12	187	179
	78-10-12	1	2.1	150	16	2.5	11	11	178	182
	78-10-12	1	2.1	150	17	2.5	11	11	173	180
	78-11-06	1	2.1	150	18	4.7	11	12	175	189
	78-11-06	1	2.1	140	23	3.5	11	12	172	186
	78-11-06	1	2.1	140	21	3.0	11	12	184	182
	78-11-06	1	2.0	140	17	3.0	11	12	182	175
	78-11-06	1	2.1	140	20	3.0	11	12	185	176
	78-12-12	1	2.3	150	15	3.0	11	11	175	179
	78-12-12	1	2.3	140	16	3.0	11	11	181	173
	78-12-12	1	2.3	150	15	3.0	11	11	172	178
25/44E-07K01	79-03-20	2	2.0	140	16	1.1	11	11	166	172
	79-04-12	1	1.7	140	15	1.2	11	11	161	163
	79-04-12	1	1.7	140	15	1.1	11	11	159	163
	79-04-12	1	1.6	140	14	1.2	11	11	162	162
	79-05-08	1	2.1	130	15	1.1	11	12	153	161
	79-05-08	1	2.0	130	15	1.1	11	11	154	157
	79-05-08	1	2.1	130	30	1.1	11	11	156	173
	79-06-14	--	--	130	--	1.5	--	--	--	--
	79-06-14	--	--	130	--	1.4	--	--	--	--
	79-06-14	--	--	130	--	1.4	--	--	--	--
	79-07-23	--	--	140	--	2.9	--	--	--	--
	79-07-23	--	--	140	--	1.8	--	--	--	--
	79-07-23	--	--	140	--	2.4	--	--	--	--
	79-08-28	--	--	140	--	1.7	--	--	--	--
	79-08-28	--	--	140	--	1.6	--	--	--	--

QUALITY OF WATER

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SPOKANE COUNTY--Continued

LOCAL IDENT- IFIER	DATE OF SAMPLE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)
25/44E-07J03	79-03-20	.23	.99	.05	1.0	4.6	.000	.01	10
	79-04-12	.22	.99	.12	1.1	4.9	.000	.00	<0
	79-04-12	.22	.96	.20	1.2	5.1	.000	.00	0
	79-04-12	.22	1.0	.09	1.1	4.8	.000	.00	<0
	79-05-08	.21	.99	.00	.99	4.4	.010	.00	<0
	79-05-08	.21	1.0	.07	1.1	4.7	.010	.00	10
	79-05-08	.21	.94	.04	.98	4.3	.010	.00	<0
	79-06-14	--	.97	.34	1.3	5.0	.010	--	--
	79-06-14	--	.98	.36	1.3	5.9	.010	--	--
	79-06-14	--	.97	.35	1.3	5.0	.010	--	--
	79-07-23	--	1.1	.05	1.2	5.1	.010	--	--
	79-07-23	--	1.1	.07	1.2	5.2	.010	--	--
	79-07-23	--	1.1	.14	1.2	5.5	.010	--	--
	79-08-20	--	1.1	.00	1.1	4.9	.010	--	--
	79-08-20	--	1.1	.00	1.1	4.9	.020	--	--
	79-08-20	--	1.1	.43	1.5	6.8	.010	--	--
	79-09-20	--	1.2	.23	1.4	6.3	.010	--	--
	79-09-20	--	1.2	.27	1.5	6.5	.010	--	--
	79-09-20	--	1.2	.23	1.4	6.3	.010	--	--
	79-09-20	.25	1.2	.02	1.2	5.4	.010	.01	10
25/44E-07K01	79-03-20	.25	1.2	.02	1.2	5.4	.010	.01	10
25/44E-07K02	78-10-12	.24	1.2	--	--	--	.010	.00	20
	78-10-12	.24	1.2	--	--	--	.010	.01	20
	78-10-12	.25	1.2	--	--	--	.010	.01	30
	78-10-12	.24	1.1	--	--	--	.000	.00	40
	78-10-12	.24	1.1	--	--	--	.000	.00	20
	78-11-06	.24	1.2	.01	1.2	5.4	.020	.01	40
	78-11-06	.23	1.2	.01	1.2	5.4	.010	.00	30
	78-11-06	.25	1.2	.01	1.2	5.4	.010	.00	40
	78-11-06	.25	1.1	.02	1.1	5.0	.010	.01	30
	78-11-06	.25	1.1	.05	1.1	5.1	.000	.00	40
	78-12-12	.24	1.1	.12	1.2	5.4	.020	.01	40
	78-12-12	.25	1.1	.10	1.3	5.7	.020	.01	0
	78-12-12	.23	1.1	.13	1.2	5.4	.030	.00	<0
LOCAL IDENT- IFIER	STATION NUMBER	LAT- ITUDE	LONG- ITUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	DEPTH OF WELL, TOTAL (FEET)	DEPTH TO BOT- TOM OF SAMPLE INTER- VAL (FT)
25/44E-07K02	474040117172601	47 40 40	117 17 26	01	78-12-12	1510	71.09	117	96
					78-12-12	1545	71.09	117	112
					79-01-23	1430	71.55	117	73
					79-01-23	1500	71.55	117	76
					79-01-23	1530	71.55	117	82
					79-01-23	1400	71.55	117	97
					79-01-23	1430	71.55	117	107
					79-02-15	1430	71.27	117	73
					79-02-15	1500	71.27	117	76
					79-02-15	1530	71.27	117	82
					79-02-15	1400	71.27	117	97
					79-02-15	1430	71.27	117	113
					79-03-20	1300	68.40	117	69
					79-03-20	1330	68.40	117	72
					79-03-20	1350	68.40	117	78
					79-03-20	1415	68.40	117	109
					79-04-12	1500	67.70	117	68
					79-04-12	1520	67.10	117	71
					79-04-12	1545	67.10	117	77
					79-05-09	1030	63.20	117	64
					79-05-09	1115	63.20	117	67
					79-05-09	1200	63.20	117	73
					79-05-14	1345	65.40	117	66
					79-05-14	1400	65.40	117	69
					79-05-14	1420	65.40	117	75
					79-07-23	1225	70.10	117	71
					79-07-23	1300	70.10	117	74
					79-07-23	1330	70.10	117	80
					79-08-28	1225	72.00	117	73
					79-08-28	1240	72.00	117	76
					79-08-28	1250	72.00	117	82
					79-09-20	1300	71.60	117	73
					79-09-20	1315	71.60	117	76
					79-09-20	1330	71.60	117	82
					79-09-20	1330	68.80	116	70
25/44E-07K03	474040117172501	47 40 40	117 17 25	01	79-03-20	1530	68.80	116	70
25/44E-07K04	474040117172401	47 40 40	117 17 24	01	78-11-06	1300	71.49	116	72

QUALITY OF WATER
SPOKANE COUNTY--Continued

LOCAL IDENT- IFIER	DATE OF SAMPLE	DEPTH TO TOP OF SAMPLE INTER- VAL (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
25/44E-07K02	78-12-12	95	299	8.2	160	20	36	17	3.9	5
	78-12-12	112	300	8.2	160	17	35	17	3.8	5
	79-01-23	72	315	--	160	25	38	17	4.3	5
	79-01-23	75	316	--	160	20	36	17	4.1	5
	79-01-23	81	316	--	160	22	37	17	4.3	5
	79-01-23	96	315	--	160	25	38	17	4.0	5
	79-01-23	106	314	--	160	22	37	17	4.0	5
	79-02-15	72	310	--	160	25	38	17	4.2	5
	79-02-15	75	311	--	160	10	36	17	4.4	6
	79-02-15	81	310	--	160	22	37	17	4.3	5
	79-02-15	96	309	--	160	22	37	17	4.4	6
	79-02-15	112	308	--	170	30	40	17	3.8	5
	79-03-20	68	310	8.4	170	20	40	17	4.6	5
	79-03-20	71	317	8.4	170	20	40	17	4.6	5
	79-03-20	77	320	8.4	170	17	39	17	4.7	6
	79-03-20	108	316	8.4	160	35	38	17	4.4	5
	79-04-12	67	304	8.4	160	5	34	17	4.3	6
	79-04-12	70	305	8.4	160	15	34	17	4.3	6
	79-04-12	76	306	8.4	160	5	34	17	4.3	6
	79-05-09	63	310	8.4	160	25	34	17	4.1	5
	79-05-09	66	310	8.4	160	15	34	17	4.1	5
	79-05-09	72	310	8.4	180	40	44	17	4.3	5
	79-06-14	65	322	8.3	--	--	--	--	--	--
	79-06-14	68	313	8.3	--	--	--	--	--	--
	79-06-14	74	313	8.3	--	--	--	--	--	--
	79-07-23	70	312	8.3	--	--	--	--	--	--
	79-07-23	73	309	8.3	--	--	--	--	--	--
	79-07-23	79	327	8.3	--	--	--	--	--	--
	79-08-28	72	315	--	--	--	--	--	--	--
	79-08-28	75	321	--	--	--	--	--	--	--
	79-08-28	81	323	--	--	--	--	--	--	--
	79-09-20	72	320	8.3	--	--	--	--	--	--
	79-09-20	75	324	8.3	--	--	--	--	--	--
	79-09-20	81	322	8.3	--	--	--	--	--	--
	79-03-20	69	324	8.4	170	20	40	17	4.6	5
25/44E-07K03										
25/44E-07K04	78-11-06	71	309	9.5	160	22	37	17	3.9	5
LOCAL IDENT- IFIER	DATE OF SAMPLE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINEITY (MG/L CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
25/44E-07K02	78-12-12	.1	2.3	140	15	2.6	.1	12	170	173
	78-12-12	.1	2.3	140	15	2.7	.1	11	171	171
	79-01-23	.1	2.1	140	18	2.8	.1	12	177	179
	79-01-23	.1	2.1	140	18	2.6	.1	12	179	176
	79-01-23	.1	2.1	140	18	3.0	.1	12	179	178
	79-01-23	.1	2.1	140	19	3.7	.1	12	178	180
	79-01-23	.1	2.1	140	18	2.4	.1	12	180	177
	79-02-15	.1	2.0	140	17	2.9	.1	12	176	177
	79-02-15	.2	1.9	150	17	2.9	.1	12	176	182
	79-02-15	.1	1.9	140	17	2.9	.1	12	171	176
	79-02-15	.2	1.9	140	17	2.5	.1	12	176	176
	79-02-15	.1	1.8	140	18	2.4	.1	12	172	179
	79-03-20	.2	2.1	150	18	3.1	.1	12	184	187
	79-03-20	.2	2.2	150	18	3.3	.1	12	182	187
	79-03-20	.2	2.3	150	18	3.2	.1	11	188	186
	79-03-20	.2	2.1	130	18	3.0	.1	11	182	172
	79-04-12	.2	1.8	150	15	2.6	.1	12	177	177
	79-04-12	.2	1.8	140	19	2.6	.1	12	179	175
	79-04-12	.2	1.8	150	16	2.6	.1	12	179	178
	79-05-09	.1	2.1	130	16	2.7	.1	12	176	166
	79-05-09	.1	2.1	140	16	2.7	.1	12	177	172
	79-05-09	.1	2.2	140	18	3.1	.1	12	176	185
	79-06-14	--	--	140	--	2.8	--	--	--	--
	79-06-14	--	--	140	--	2.8	--	--	--	--
	79-06-14	--	--	140	--	2.9	--	--	--	--
	79-07-23	--	--	150	--	3.5	--	--	--	--
	79-07-23	--	--	140	--	3.4	--	--	--	--
	79-07-23	--	--	140	--	3.4	--	--	--	--
	79-08-28	--	--	140	--	3.7	--	--	--	--
	79-08-28	--	--	140	--	3.7	--	--	--	--
	79-08-28	--	--	140	--	3.7	--	--	--	--
	79-09-20	--	--	140	--	3.2	--	--	--	--
	79-09-20	--	--	140	--	3.3	--	--	--	--
	79-09-20	--	--	140	--	3.1	--	--	--	--
	79-03-20	.2	2.2	150	18	3.0	.1	11	183	186
25/44E-07K03										
25/44E-07K04	78-11-06	.1	2.1	140	17	2.9	.1	12	187	176

QUALITY OF WATER

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SPOKANE COUNTY--Continued

LOCAL IDENT- I- FIER	DATE OF SAMPLE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, D15- SOLVED (MG/L AS P)	IRON, D15- SOLVED (UG/L AS FE)
25/44E-07K02	78-12-12	.23	1.1	.07	1.2	5.2	.020	.00	30
	78-12-12	.23	1.0	.16	1.2	5.1	.010	.00	40
	79-01-23	.24	1.2	.00	1.2	5.3	.010	.02	0
	79-01-23	.24	1.4	.02	1.4	6.3	.010	.01	10
	79-01-23	.24	1.2	.02	1.2	5.4	.010	.00	0
	79-01-23	.24	1.1	.22	1.3	5.8	.020	.00	10
	79-01-23	.24	1.0	.12	1.1	5.0	.000	.00	10
	79-02-15	.24	1.3	.07	1.4	6.1	.050	.01	0
	79-02-15	.24	1.2	.07	1.3	5.6	.050	.01	0
	79-02-15	.23	1.2	.05	1.3	5.5	.050	.01	10
	79-02-15	.24	1.1	.12	1.2	5.4	.040	.01	0
	79-02-15	.23	1.1	.02	1.1	5.0	.040	.01	0
	79-03-20	.25	1.4	.06	1.5	6.5	.010	.03	10
	79-03-20	.25	1.3	.08	1.4	6.1	.010	.02	10
	79-03-20	.26	1.3	.04	1.3	5.9	.010	.02	0
	79-03-20	.25	1.2	.02	1.2	5.4	.010	.01	10
	79-04-12	.24	1.3	.08	1.4	6.1	.010	.00	<0
	79-04-12	.24	1.3	.07	1.4	6.1	.010	.00	10
	79-04-12	.24	1.3	.04	1.3	5.9	.010	.00	10
	79-05-09	.24	1.3	.10	1.4	6.2	.010	.00	<0
	79-05-09	.24	1.4	.03	1.4	6.3	.010	.00	<0
	79-05-09	.24	1.3	.05	1.4	6.0	.010	.00	<0
	79-06-14	--	1.3	.28	1.6	7.0	.010	--	--
	79-06-14	--	1.3	.39	1.7	7.5	.010	--	--
	79-06-14	--	1.3	.34	1.6	7.3	.010	--	--
	79-07-23	--	1.3	.01	1.3	5.8	.010	--	--
	79-07-23	--	1.3	.02	1.3	5.8	.010	--	--
	79-07-23	--	1.3	.03	1.3	5.9	.010	--	--
	79-08-28	--	1.4	.20	1.6	7.1	.010	--	--
	79-08-28	--	1.4	.00	1.4	6.2	.010	--	--
	79-08-28	--	1.4	.00	1.4	6.2	.010	--	--
	79-09-20	--	1.6	.04	2.2	9.9	.020	--	--
	79-09-20	--	1.3	.20	1.5	6.6	.010	--	--
	79-09-20	--	1.3	.20	1.5	6.6	.010	--	--
	79-03-20	.25	1.4	.04	1.4	6.4	.020	.02	0
25/44E-07K03									
25/44E-07K04	78-11-06	.25	1.3	.15	1.4	6.4	.020	.00	40

LOCAL IDENT- I- FIER	STATION	NUMBER	LAT- I- TUDE	LONG- I- TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	DEPTH OF WELL, TOTAL (FEET)	DEPTH TO BOT- TOM OF SAMPLE INTER- VAL (FT)
25/44E-07K04	474040117172401	47 40 40	117 17 24	01	78-11-06	1330	71.49	116	75	
					78-11-06	1430	71.49	116	81	
					78-11-06	1500	71.49	116	96	
					78-11-06	1530	71.49	116	112	
					78-12-12	1100	71.79	116	73	
					78-12-12	1130	71.79	116	76	
					78-12-12	1200	71.79	116	82	
					78-12-12	1230	71.79	116	97	
					79-01-23	1145	72.29	116	74	
					79-01-23	1215	72.29	116	77	
					79-01-23	1300	72.29	116	83	
					79-01-23	1330	72.29	116	98	
					79-01-23	1400	72.29	116	113	
					79-02-15	1045	71.98	116	73	
					79-02-15	1115	71.98	116	76	
					79-02-15	1145	71.98	116	82	
					79-02-15	1215	71.98	116	97	
					79-02-15	1300	71.98	116	113	
					79-03-20	0900	69.10	116	70	
					79-03-20	0930	69.10	116	73	
					79-03-20	1015	69.10	116	79	
					79-03-20	1045	69.10	116	110	
					79-04-12	1200	67.70	116	60	
					79-04-12	1230	67.70	116	71	
					79-04-12	1300	67.70	116	77	
					79-05-09	0800	64.40	116	65	
					79-05-09	0845	64.40	116	68	
					79-05-09	0930	64.40	116	74	
					79-05-14	1130	66.00	116	67	
					79-06-14	1145	66.00	116	70	
					79-06-14	1205	66.00	116	76	
					79-07-23	1045	70.80	116	72	
					79-07-23	1100	70.80	116	75	
					79-07-23	1110	70.80	116	81	
					79-08-28	1045	72.60	116	73	
					79-08-28	1100	72.60	116	76	

QUALITY OF WATER
SPOKANE COUNTY--Continued

LOCAL IDENT- IFIER	DATE OF SAMPLE	DEPTH TO TOP OF SAMPLE INTER- VAL (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM DIS- SOLVED (MG/L AS MG)	SODIUM DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
25/44E-07K04	78-11-06	74	309	9.5	160	22	37	17	4.0	5
	78-11-06	80	306	9.5	170	27	39	17	4.0	5
	78-11-06	95	306	9.5	168	16	36	16	3.7	5
	78-11-06	112	306	9.5	166	25	38	17	3.8	5
	78-12-12	72	308	7.8	160	7	35	17	3.7	5
	78-12-12	75	305	8.2	150	13	35	16	3.6	5
	78-12-12	81	306	8.2	160	17	35	17	3.5	5
	78-12-12	96	306	8.2	160	20	36	17	3.8	5
	79-01-23	73	315	--	160	25	38	17	4.4	5
	79-01-23	76	315	--	160	20	36	17	4.3	5
	79-01-23	82	315	--	160	20	36	17	4.2	5
	79-01-23	97	315	--	160	22	37	17	4.2	5
	79-01-23	112	315	--	160	22	37	17	4.1	5
	79-02-15	72	311	--	160	32	37	17	4.2	5
	79-02-15	75	311	--	160	22	37	17	4.3	5
	79-02-15	81	311	--	160	35	38	17	4.4	5
	79-02-15	96	311	--	160	17	35	17	4.3	6
	79-02-15	112	311	--	160	30	37	17	4.4	5
	79-03-20	69	325	8.4	190	42	47	18	4.8	5
	79-03-20	72	325	8.4	160	12	37	17	4.7	6
	79-03-20	78	328	8.4	160	15	38	17	4.7	6
	79-03-20	109	325	8.4	170	24	40	18	5.2	6
	79-04-12	67	307	8.4	160	5	34	17	4.5	6
	79-04-12	70	308	8.4	150	8	33	16	4.6	6
	79-04-12	76	307	8.4	150	8	33	16	4.4	6
	79-05-09	64	313	8.4	160	22	35	18	4.4	6
	79-05-09	67	307	8.4	160	22	35	18	4.3	5
	79-05-09	73	311	8.4	150	6	32	16	4.0	6
	79-06-14	66	312	8.4	--	--	--	--	--	--
	79-06-14	69	310	8.4	--	--	--	--	--	--
	79-06-14	75	308	8.4	--	--	--	--	--	--
	79-07-23	71	317	10.2	--	--	--	--	--	--
	79-07-23	74	311	9.5	--	--	--	--	--	--
	79-07-23	80	310	8.4	--	--	--	--	--	--
	79-08-28	72	329	--	--	--	--	--	--	--
	79-08-28	75	321	--	--	--	--	--	--	--
LOCAL IDENT- IFIER	DATE OF SAMPLE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM DIS- SOLVED (MG/L AS K)	ALKA- LITY AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE DIS- SOLVED (MG/L AS CL)	FLUO- RIDE DIS- SOLVED (MG/L AS F)	SILICA DIS- SOLVED (MG/L AS SiO2)	SOLIDS RESIDUE AT 100 DEG C DIS- SOLVED (MG/L)	SOLIDS SUM OF CONSTIT- UENTS DIS- SOLVED (MG/L)
25/44E-07K04	78-11-06	.1	2.1	140	17	2.8	.1	12	183	176
	78-11-06	.1	2.1	140	18	2.9	.1	12	183	179
	78-11-06	.1	1.9	140	18	2.7	.1	12	184	175
	78-11-06	.1	2.0	140	17	2.7	.1	12	183	177
	78-12-12	.1	2.3	150	16	2.9	.1	11	177	178
	78-12-12	.1	2.3	140	18	2.9	.1	11	181	173
	78-12-12	.1	2.3	140	16	2.8	.1	11	181	172
	78-12-12	.1	2.3	140	16	2.8	.1	11	179	173
	79-01-23	.2	2.1	140	19	2.7	.1	12	181	180
	79-01-23	.1	2.1	140	18	2.7	.1	12	181	176
	79-01-23	.1	2.1	140	19	2.7	.1	12	181	177
	79-01-23	.1	2.1	140	19	2.5	.1	12	183	178
	79-01-23	.1	2.1	140	17	2.7	.1	12	184	176
	79-02-15	.1	1.9	140	18	3.2	.1	12	176	172
	79-02-15	.1	1.9	140	18	3.2	.1	5.9	188	172
	79-02-15	.2	1.9	140	17	3.3	.1	12	178	172
	79-02-15	.2	1.9	140	17	3.2	.1	12	178	175
	79-02-15	.2	1.9	140	17	3.2	.1	12	173	180
	79-03-20	.2	2.2	150	18	3.2	.1	11	184	195
	79-03-20	.2	2.2	150	18	3.1	.1	11	183	183
	79-03-20	.2	2.2	150	17	3.0	.1	11	178	183
	79-03-20	.2	3.2	150	21	3.0	.1	11	180	192
	79-04-12	.2	1.8	150	16	2.6	.1	12	180	178
	79-04-12	.2	1.8	140	16	2.6	.1	11	181	169
	79-04-12	.2	1.9	140	16	2.5	.1	11	176	169
	79-05-09	.2	2.2	140	17	3.1	.1	12	172	176
	79-05-09	.1	2.2	140	19	2.6	.1	12	170	177
	79-05-09	.1	2.2	140	17	2.5	.1	11	169	169
	79-06-14	--	--	140	--	2.7	--	--	--	--
	79-06-14	--	--	140	--	2.6	--	--	--	--
	79-06-14	--	--	140	--	3.0	--	--	--	--
	79-07-23	--	--	150	--	4.1	--	--	--	--
	79-07-23	--	--	150	--	3.8	--	--	--	--
	79-07-23	--	--	150	--	3.7	--	--	--	--
	79-08-28	--	--	150	--	3.8	--	--	--	--
	79-08-28	--	--	150	--	3.9	--	--	--	--

QUALITY OF WATER
SPOKANE COUNTY--Continued

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LOCAL IDENT- I- FIER	DATE OF SAMPLE	SOLIDS- DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN- NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN-AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN- TOTAL (MG/L AS N)	NITRO- GEN- TOTAL (MG/L AS NO3)	PHOS- PHORUS- TOTAL (MG/L AS P)	PHOS- PHORUS- ORTHOS- DIS- SOLVED (MG/L AS P)	IRON- DIS- SOLVED (MG/L AS FE)	
25/44E-07K04	78-11-06	.25	1.3	.05	1.3	6.9	.020	.00	40	
	78-11-06	.25	1.2	.05	1.2	5.5	.010	.00	30	
	78-11-06	.25	1.5	.21	1.7	7.6	.010	.00	40	
	78-11-06	.25	1.2	.10	1.3	5.8	.020	.00	40	
	78-12-12	.24	1.1	.18	1.3	5.7	.030	.01	40	
	78-12-12	.25	1.2	.12	1.3	5.8	.030	.02	40	
	78-12-12	.25	1.1	.16	1.3	5.6	.030	.02	30	
	78-12-12	.24	1.1	.25	1.3	6.0	.030	.01	40	
	79-01-23	.25	1.4	.03	1.4	6.3	.010	.01	30	
	79-01-23	.25	1.2	.05	1.2	5.5	.010	.01	0	
	79-01-23	.25	1.3	.25	1.5	6.9	.020	.00	0	
	79-01-23	.25	1.3	.11	1.4	6.2	.010	.00	0	
	79-01-23	.25	1.3	.12	1.4	6.3	.010	.00	0	
	79-02-15	.24	1.3	.07	1.4	6.1	.050	.01	<0	
	79-02-15	.26	1.3	.09	1.4	6.2	.050	.01	10	
	79-02-15	.24	1.3	.10	1.4	6.2	.050	.01	0	
	79-02-15	.24	1.3	.05	1.4	6.0	.050	.01	10	
	79-02-15	.24	1.3	.07	1.4	6.1	.050	.01	0	
	79-03-20	.25	1.5	.05	1.6	6.9	.010	.01	10	
	79-03-20	.25	1.5	.00	1.6	7.0	.010	.01	0	
	79-03-20	.24	1.4	.05	1.5	6.4	.010	.01	10	
	79-03-20	.24	1.4	.05	1.5	6.4	.010	.01	10	
	79-04-12	.24	1.4	.05	1.5	6.4	.010	.01	<0	
	79-04-12	.25	1.4	.05	1.5	6.4	.010	.01	10	
	79-04-12	.24	1.4	.05	1.5	6.4	.010	.01	<0	
	79-05-09	.23	1.5	.39	1.9	8.4	.020	.01	<0	
	79-05-09	.23	1.5	.01	1.5	6.7	.020	.01	<0	
	79-05-09	.23	1.6	.14	1.7	7.7	.020	.01	<0	
	79-06-14	--	1.2	.31	1.5	6.7	.020	--	--	
	79-06-14	--	1.2	.47	1.7	7.4	.020	--	--	
	79-06-14	--	1.3	.32	1.6	7.2	.020	--	--	
	79-07-23	--	1.5	.02	1.5	6.7	.020	--	--	
	79-07-23	--	1.4	.05	1.5	6.4	.020	--	--	
	79-07-23	--	1.3	.09	1.4	6.2	.020	--	--	
	79-08-28	--	1.4	.00	1.4	6.2	.010	--	--	
	79-08-28	--	1.4	.00	1.4	6.2	.010	--	--	
LOCAL IDENT- I- FIER	STATION NUMBER	LAT- I- TUDE	LONG- I- TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	DEPTH OF WELL- TOTAL (FEET)	DEPTH TO BOT- TOM OF SAMPLE INTER- VAL (FT)	
25/44E-07K04	474040117172401	47 40 40	117 17 24	01	79-08-28	1115	72.60	116	82	
					79-09-20	1120	72.30	116	73	
					79-09-20	1135	72.30	116	76	
					79-09-20	1150	72.30	116	82	
25/44E-07K05	474039117172401	47 40 39	117 17 24	01	79-03-20	1120	69.20	116	70	
25/44E-07K06	474038117172401	47 40 38	117 17 24	01	79-03-20	1200	69.50	105	78	
LOCAL IDENT- I- FIER	DATE OF SAMPLE	DEPTH TO TOP OF SAMPLE INTER- VAL (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CaCO3)	HARD- NESS- NONCAR- BONATE (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM- DIS- SOLVED (MG/L AS MG)	SODIUM- DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
SPOKANE										
25/44E-07K04	79-08-28	81	318	--	--	--	--	--	--	--
	79-09-20	72	323	8.3	--	--	--	--	--	--
	79-09-20	75	326	8.3	--	--	--	--	--	--
	79-09-20	81	329	8.3	--	--	--	--	--	--
25/44E-07K05	79-03-20	69	330	8.4	170	17	37	18	4.5	5
25/44E-07K06	79-03-20	69	325	8.4	160	4	36	18	4.2	5

QUALITY OF WATER

SPOKANE COUNTY--Continued

LOCAL IDENT- I- FIER	DATE OF SAMPLE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY (MG/L CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 100 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
25/44E-07K04	79-08-28	--	--	150	--	3.8	--	--	--	--
	79-09-20	--	--	150	--	3.2	--	--	--	--
	79-09-20	--	--	150	--	3.2	--	--	--	--
	79-09-20	--	--	150	--	3.0	--	--	--	--
25/44E-07K05	79-03-20	.2	2.2	150	18	2.9	.1	11	177	184
25/44E-07K06	79-03-20	.1	2.1	160	17	2.5	.1	12	170	188

LOCAL IDENT- I- FIER	DATE OF SAMPLE	SOLIDS, DIS- (TONS AC-FT)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHOPHOS- PHATE SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)
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SPOKANE

25/44E-07K04	79-08-28	--	1.3	.08	1.3	5.8	.010	--	--
	79-09-20	--	1.4	.22	1.6	7.2	.010	--	--
	79-09-20	--	1.4	.23	1.6	7.2	.020	--	--
	79-09-20	--	1.3	.15	1.5	6.4	.020	--	--
25/44E-07K05	79-03-20	.24	1.4	.06	1.5	6.5	.010	.01	10
25/44E-07K06	79-03-20	.23	1.2	.04	1.2	5.5	.000	.01	10

LOCAL IDENT- I- FIER	STATION NUMBER	LAT- I- TUDE	LONG- I- TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. NGVD)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)
25/44E-13M01	473939117114201	47 39 39	117 11 42	01	79-06-19	1330	125	2040.20	244
25/44E-16E01	473954117152101	47 39 54	117 15 21	01	79-06-20	0807	128	2015.00	286
25/44E-18002	474010117180001	47 40 11	117 17 56	01	79-06-20	1020	128	1951.00	285
25/44E-27L01	473800117135001	47 38 00	117 13 58	01	79-06-19	1100	186	2013.50	498
25/45E-03M01	474124117062101	47 41 24	117 06 21	01	79-07-10	1315	138	2050.00	316
25/45E-07A03	474109117091603	47 41 09	117 09 16	03	79-07-06	1130	170	2021.00	311
25/45E-17003	474016117085003	47 40 16	117 08 58	03	79-07-06	1050	215	2036.00	187
26/42E-08A01	474619117310301	47 46 19	117 31 03	01	79-07-12	1405	300	1748.00	387
26/42E-11F01	474602117280101	47 46 02	117 28 01	01	79-06-21	1205	38	1560.00	291
26/42E-12A01S	474611117255001	47 46 11	117 25 58	01	79-06-21	1120	--	1590.00	295
26/42E-17A02	474524117310701	47 45 24	117 31 07	01	79-06-21	1300	72	1640.00	176
26/42E-20M01	474436117312801	47 44 36	117 31 26	01	79-06-22	0805	149	1624.00	350
26/43E-03P01	474428117213201	47 44 27	117 21 24	01	79-06-20	1315	203	1887.00	310
26/43E-07K01	474549117256201	47 45 49	117 25 03	01	79-06-21	1040	164	1790.00	328
26/43E-17J01	474503117233101	47 45 03	117 23 31	01	79-06-20	1400	248	1966.00	320
26/43E-20D01	474437117243501	47 44 37	117 24 35	01	79-06-21	1010	286	1949.00	253

LOCAL IDENT- I- FIER	DATE OF SAMPLE	PH	TEMPER- ATURE (DEG C)	COLI- FORM, FECAL, 0.7 UM-HF (COLS./ 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
25/44E-13M01	79-06-19	7.7	13.0	<1	120	21	32	10	3.0	5
25/44E-16E01	79-06-20	7.5	9.8	<1	140	20	33	14	3.2	5
25/44E-18002	79-06-20	7.5	10.5	<1	140	13	34	14	3.4	5
25/44E-27L01	79-06-19	7.7	12.4	<1	250	29	65	21	9.3	7
25/45E-03M01	79-07-10	7.6	9.2	<1	150	12	33	17	3.0	4
25/45E-07A03	79-07-06	7.6	9.0	<1	150	12	33	17	3.2	4
25/45E-17003	79-07-06	7.6	11.2	<1	79	12	19	7.7	2.1	5
26/42E-08A01	79-07-12	8.1	11.2	<1	170	0	37	20	4.1	5
26/42E-11F01	79-06-21	8.0	11.7	<1	140	22	32	15	3.7	5
26/42E-12A01S	79-06-21	8.2	12.0	K14	150	20	32	17	3.5	5
26/42E-17A02	79-06-21	7.8	7.8	<1	80	14	23	5.5	3.1	8
26/42E-20M01	79-06-22	7.8	9.6	<1	160	11	43	13	10	12
26/43E-03P01	79-06-20	7.9	12.2	<1	160	22	40	15	4.5	6
26/43E-07K01	79-06-21	8.0	11.8	<1	160	27	33	18	4.5	6
26/43E-17J01	79-06-20	7.8	11.6	<1	180	23	34	19	3.7	5
26/43E-20D01	79-06-21	8.2	10.8	<1	130	18	28	14	3.2	5

QUALITY OF WATER
SPOKANE COUNTY--Continued

LOCAL IDENT- IFIER	DATE OF SAMPLE	SODIUM AD- SORP- TION RATIO	SODIUM- POTAS- SIUM DIS- SOLVED (MG/L AS NA)	POTAS- SIUM DIS- SOLVED (MG/L AS K)	ALKA- LINIT- Y AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE DIS- SOLVED (MG/L AS CL)	FLUO- RIDE DIS- SOLVED (MG/L AS F)	SILICA DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
25/44E-13M01	79-06-19	.1	4.9	1.9	100	12	2.0	.1	11	139
25/44E-16E01	79-06-20	.1	5.2	2.0	120	15	2.0	.0	9.7	157
25/44E-18D02	79-06-20	.1	5.5	2.1	130	15	2.0	.1	10	165
25/44E-27L01	79-06-19	.3	13	3.7	220	18	8.4	.1	18	297
25/45E-03M01	79-07-10	.1	5.2	2.2	140	17	1.2	.1	12	175
25/45E-07A03	79-07-06	.1	5.2	2.0	140	17	1.0	.1	12	174
25/45E-17D03	79-07-06	.1	3.7	1.6	67	12	.9	.1	13	98
26/42E-08A01	79-07-12	.1	7.2	3.1	180	16	1.7	.1	11	204
26/42E-11F01	79-06-21	.1	5.0	1.3	120	22	3.2	.1	9.6	167
26/42E-12A015	79-06-21	.1	5.9	2.4	130	22	2.8	.1	9.3	174
26/42E-17A02	79-06-21	.2	5.0	1.9	86	16	1.6	.2	29	102
26/42E-20H01	79-06-22	.3	13	3.0	150	18	4.1	.2	12	220
26/43E-03P01	79-06-20	.2	6.8	2.3	140	16	4.4	.1	9.9	185
26/43E-07K01	79-06-21	.2	6.8	2.3	130	24	5.4	.0	9.3	185
26/43E-17J01	79-06-20	.1	6.0	2.3	140	20	3.0	.0	9.3	184
26/43E-20D01	79-06-21	.1	5.0	1.8	110	21	2.2	.1	.1	141

LOCAL IDENT- IFIER	DATE OF SAMPLE	SOLIDS DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	ALUM- INUM, DIS- SOLVED (MG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM DIS- SOLVED (UG/L AS CR)	COPPER DIS- SOLVED (UG/L AS CU)	IRON DIS- SOLVED (UG/L AS FE)
25/44E-13M01	79-06-19	.19	1.6	--	--	--	--	--	--	10
25/44E-16E01	79-06-20	.21	1.4	--	--	--	--	--	--	10
25/44E-18D02	79-06-20	.22	1.4	--	--	--	--	--	--	0
25/44E-27L01	79-06-19	.40	4.8	0	3	100	2	10	0	40
25/45E-03M01	79-07-10	.24	1.1	0	3	30	--	--	--	40
25/45E-07A03	79-07-06	.24	1.0	--	--	--	--	--	--	0
25/45E-17D03	79-07-06	.13	.66	--	--	--	--	--	--	110
26/42E-08A01	79-07-12	.26	.00	0	9	100	3	10	0	0
26/42E-11F01	79-06-21	.23	1.4	--	--	--	--	--	--	0
26/42E-12A015	79-06-21	.24	1.3	--	--	--	--	--	--	0
26/42E-17A02	79-06-21	.14	.01	--	--	--	--	--	--	1000
26/42E-20H01	79-06-22	.30	2.4	--	--	--	--	--	--	10
26/43E-03P01	79-06-20	.25	1.4	--	--	--	--	--	--	0
26/43E-07K01	79-06-21	.25	2.1	0	2	0	1	10	1	0
26/43E-17J01	79-06-20	.25	1.9	0	2	0	0	0	4	10
26/43E-20D01	79-06-21	.19	1.1	--	--	--	--	--	--	10

LOCAL IDENT- IFIER	DATE OF SAMPLE	LEAD DIS- SOLVED (UG/L AS PB)	MANGA- NESE DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM DIS- SOLVED (UG/L AS SE)	SILVER DIS- SOLVED (UG/L AS AG)	ZINC DIS- SOLVED (UG/L AS ZN)	PHENOLS (UG/L)
25/44E-13M01	79-06-19	--	10	--	--	--	--	--
25/44E-16E01	79-06-20	--	0	--	--	--	--	0
25/44E-18D02	79-06-20	1	0	.0	0	0	10	--
25/44E-27L01	79-06-19	1	<1	.0	0	0	<3	--
25/45E-03M01	79-07-10	--	<1	--	--	--	--	--
25/45E-07A03	79-07-06	--	<1	--	--	--	--	--
25/45E-17D03	79-07-06	--	<1	--	--	--	--	1
26/42E-08A01	79-07-12	0	100	.0	--	--	--	--
26/42E-11F01	79-06-21	--	0	--	--	--	--	0
26/42E-12A015	79-06-21	--	0	--	--	--	--	--
26/42E-17A02	79-06-21	--	360	--	--	--	--	--
26/42E-20H01	79-06-22	--	0	--	--	--	--	--
26/43E-03P01	79-06-20	3	10	.9	0	0	100	0
26/43E-07K01	79-06-21	2	0	.0	0	0	--	--
26/43E-17J01	79-06-20	--	0	--	--	--	--	--
26/43E-20D01	79-06-21	--	0	--	--	--	--	--

QUALITY OF WATER
STEVENS COUNTY

LOCAL IDENT- I- FIER	STATION NUMBER	LAT- I- TUDE	LONG- I- TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH OF WELL TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. NGVD)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)
27/39E-13F01	475029117500001	47 50 29	117 50 00	01	79-07-25	0850	282	1710.00	390
28/39E-24G01	475443117494501	47 54 43	117 49 45	01	79-07-25	1115	42	1668.00	412
28/39E-35L01	475252117511701	47 52 52	117 51 17	01	79-07-25	1145	131	1700.00	355
28/40E-05Q01	475700117476701	47 57 00	117 47 47	01	79-07-25	1005	60	1810.00	339
28/40E-17L01	475527117472901	47 55 27	117 47 29	01	79-07-25	0935	41	1790.00	325
29/40E-22Q01	475945117441201	47 59 31	117 44 37	01	79-07-25	1035	61	1860.00	397
33/39E-13C01	482155117501101	48 21 55	117 50 11	01	79-06-21	1300	520	1620.00	280
34/39E-10F02	482742117525201	48 27 46	117 52 55	01	79-06-21	1455	48	1600.00	380
35/39E-10A01	483315117521001	48 33 15	117 52 18	01	79-06-22	0915	236	1900.00	429
35/39E-20K01	483102117552801	48 31 01	117 55 23	01	79-06-22	1015	110	1560.00	325
35/39E-32P02	482057117553701	48 20 57	117 55 37	01	79-06-22	0745	290	1880.00	635

LOCAL IDENT- I- FIER	DATE OF SAMPLE	PH (UNITS)	TEMPER- ATURE (DEG C)	COLI- FORM, FECAL, 0.7 UN-MF (COLS./ 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
27/39E-13F01	79-07-25	8.1	17.1	<1	200	7	36	26	4.3	4
28/39E-24G01	79-07-25	7.6	11.5	<1	210	0	48	22	5.1	5
28/39E-35L01	79-07-25	7.9	15.5	<1	170	0	43	14	10	11
28/40E-05Q01	79-07-25	7.6	12.3	<1	160	5	38	17	5.0	6
28/40E-17L01	79-07-25	7.8	10.9	<1	150	4	37	15	6.0	8
29/40E-22Q01	79-07-25	7.8	10.3	<1	200	0	46	20	5.4	6
33/39E-13C01	79-06-21	7.7	13.4	--	130	0	33	11	5.6	9
34/39E-10F02	79-06-21	7.7	10.4	<1	130	0	39	8.4	6.1	9
35/39E-10A01	79-06-22	7.4	10.4	<1	200	13	55	16	4.9	5
35/39E-20K01	79-06-22	7.6	11.4	<1	150	5	40	11	8.1	10
35/39E-32P02	79-06-22	7.4	12.4	<1	280	0	46	15	16	14

LOCAL IDENT- I- FIER	DATE OF SAMPLE	SODIUM AD- SORP- TION RATIO	SODIUM+ POTAS- SIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
27/39E-13F01	79-07-25	.1	8.5	4.2	190	20	1.5	.1	13	223
28/39E-24G01	79-07-25	.2	7.9	2.8	210	9.7	.9	.1	24	242
28/39E-35L01	79-07-25	.3	13	3.0	170	11	.8	.3	22	207
28/40E-05Q01	79-07-25	.2	7.6	2.6	160	7.6	1.2	.1	27	199
28/40E-17L01	79-07-25	.2	8.4	2.4	150	6.7	1.2	.2	27	191
29/40E-22Q01	79-07-25	.2	8.5	3.1	200	7.5	1.3	.1	31	238
33/39E-13C01	79-06-21	.2	7.1	1.5	130	17	.5	.1	16	163
34/39E-10F02	79-06-21	.2	7.9	1.8	140	9.4	1.6	.2	21	175
35/39E-10A01	79-06-22	.2	6.4	1.5	190	32	2.6	.1	14	241
35/39E-20K01	79-06-22	.3	13	4.5	140	28	1.3	.2	19	196
35/39E-32P02	79-06-22	.4	20	3.8	290	54	2.4	.2	23	381

QUALITY OF WATER

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STEVENS COUNTY--Continued

LOCAL IDENT- IFIER	DATE OF SAMPLE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
27/39E-13F01	79-07-25	.30	.81	--	--	--	--	--	--	360
28/39E-24G01	79-07-25	.33	.64	--	--	--	--	--	--	100
28/39E-35L01	79-07-25	.28	.03	10	9	80	<1	10	4	330
28/40E-05Q01	79-07-25	.27	.90	--	--	--	--	--	--	150
28/40E-17L01	79-07-25	.26	1.1	--	--	--	--	--	--	110
29/40E-22Q01	79-07-25	.32	.78	--	--	--	--	--	--	290
33/39E-13C01	79-06-21	.22	.00	0	7	100	<1	0	0	190
34/39E-10F02	79-06-21	.24	.73	--	--	--	--	--	--	10
35/39E-10A01	79-06-22	.33	.00	0	1	100	<1	0	1	30
35/39E-20K01	79-06-22	.27	.00	--	--	--	--	--	--	10
35/39E-32P02	79-06-22	.52	1.3	--	--	--	--	--	--	<0

LOCAL IDENT- IFIER	DATE OF SAMPLE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)	PHENOLS (UG/L)
27/39E-13F01	79-07-25	--	2	--	--	--	--	--
28/39E-24G01	79-07-25	--	<1	--	--	--	--	--
28/39E-35L01	79-07-25	0	90	.1	0	0	110	--
28/40E-05Q01	79-07-25	--	2	--	--	--	--	--
28/40E-17L01	79-07-25	--	<1	--	--	--	--	--
29/40E-22Q01	79-07-25	--	2	--	--	--	--	--
33/39E-13C01	79-06-21	0	90	.4	0	0	<3	--
34/39E-10F02	79-06-21	--	2	--	--	--	--	--
35/39E-10A01	79-06-22	0	290	.2	0	0	<3	--
35/39E-20K01	79-06-22	--	5	--	--	--	--	--
35/39E-32P02	79-06-22	--	<1	--	--	--	--	--

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FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
inches (in)	2.54×10^1	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^0	kilometers (km)
<i>Area</i>		
acres	4.047×10^3	square meters (m ²)
	4.047×10^{-1}	square hectometers (hm ²)
	4.047×10^{-2}	square kilometers (km ²)
square miles (mi ²)	2.590×10^6	square kilometers (km ²)
<i>Volume</i>		
gallons (gal)	3.785×10^0	liters (L)
	3.785×10^{-3}	cubic decimeters (dm ³)
	3.785×10^{-3}	cubic meters (m ³)
million gallons	3.785×10^3	cubic meters (m ³)
	3.785×10^{-3}	cubic hectometers (hm ³)
cubic feet (ft ³)	2.832×10^1	cubic decimeters (dm ³)
	2.832×10^{-3}	cubic meters (m ³)
cfs-days	2.447×10^3	cubic meters (m ³)
	2.447×10^{-3}	cubic hectometers (hm ³)
acre-feet (acre-ft)	1.233×10^1	cubic meters (m ³)
	1.233×10^{-3}	cubic hectometers (hm ³)
	1.233×10^{-6}	cubic kilometers (km ³)
<i>Flow</i>		
cubic feet per second (ft ³ /s)	2.832×10^1	liters per second (L/s)
	2.832×10^1	cubic decimeters per second (dm ³ /s)
	2.832×10^{-3}	cubic meters per second (m ³ /s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm ³ /s)
	6.309×10^{-5}	cubic meters per second (m ³ /s)
million gallons per day	4.381×10^1	cubic decimeters per second (dm ³ /s)
	4.381×10^{-2}	cubic meters per second (m ³ /s)
<i>Mass</i>		
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons